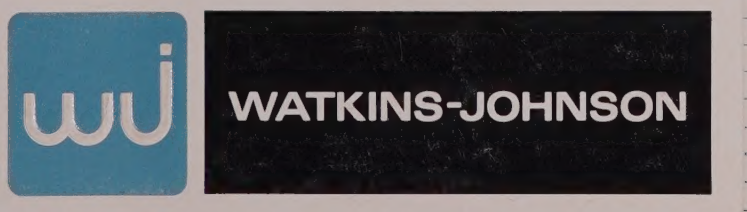
INSTRUCTION MANUAL
FOR
TYPES DMS-107 AND DMS-107-1
DEMODULATORS



INSTRUCTION MANUAL
FOR
TYPES DMS-107 AND DMS-107-1
DEMODULATORS

WATKINS—JOHNSON COMPANY
700 Quince Orchard Road
Gaithersburg, Maryland 20878

WARNING

This equipment employs voltages which are dangerous and may be fatal if contacted. Extreme caution should be exercised in working with the equipment with any of the protective covers removed.

ADDENDA

DMS-107 and DMS-107-1

The following changes should be incorporated into the Instruction Manual for the DMS-107 and DMS-107-1 Demodulators.

1. Section V - Replacement Parts List

   A. DMS-107 and DMS-107-1 Demodulator Main Chassis

      1) Add W6 as follows: CABLE ASSEMBLY (DMS-107-1); Qty. 1; Part No. 30020- ; Mfr. Code 14632.

7 October 1975
DLM:dwf

   B. Page 5-56, Type 72281 21.4 MHz IF Amplifier (A10) Parts List

      1) Change R44 from Same as R2 to: Same as R30.

      2) Change R45 from: Same as R2 to: Same as R4.

   C. Page 5-84, Type 7440 Audio Amplifier (A15) Parts List

      1) Change R6 from: 2.7 kΩ, 5%, 1/4W, Part No. RCR07G272JS, Vendor Code 81349 to: 2.7 Ω, 5%, 1/4W, Part No. RCR07G2R7JS, Vendor Code 81349.

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Table 1-1. Types DMS-107 and DMS-107-1 Demodulators, Specifications

Tuning Range	100 kHz to 10 MHz in one band
Types of Reception	AM, FM, CW, and Pulse
Input Impedance	50-75 ohms
Input Level Range	30 mV to 1V peak-to-peak
IF Center Frequency	21.4 MHz
IF Bandwidths:	
DMS-107	20, 50, 100, 300, and 500 kHz, 1, 2, and 3 MHz
DMS-107-1	20, 50, 100, 300, and 500 kHz, 1, 3, and 5.5 MHz
Predetection IF Output	50 mV, minimum, into 50-ohm load
Video Output Level	2V, peak-to-peak into 91-ohm load
Audio Outputs	100 mW, minimum, into 600-ohm load, and headphones jack
Video Amplifier Response	70 Hz to 4 MHz at 3-dB points
Local Oscillator Output	100 mV, minimum, into 50-ohm load
External Local Oscillator Input	1V, rms, into 50 ohms
Signal Monitor Output	21.4 MHz center frequency
Input Power	115 or 230 Vac, 50-400 Hz
Power Consumption	10 watts, approximately
Dimensions	19 inches wide, 3.5 inches high, and 18 inches deep, approximately
Weight	18.5 lbs., approximately

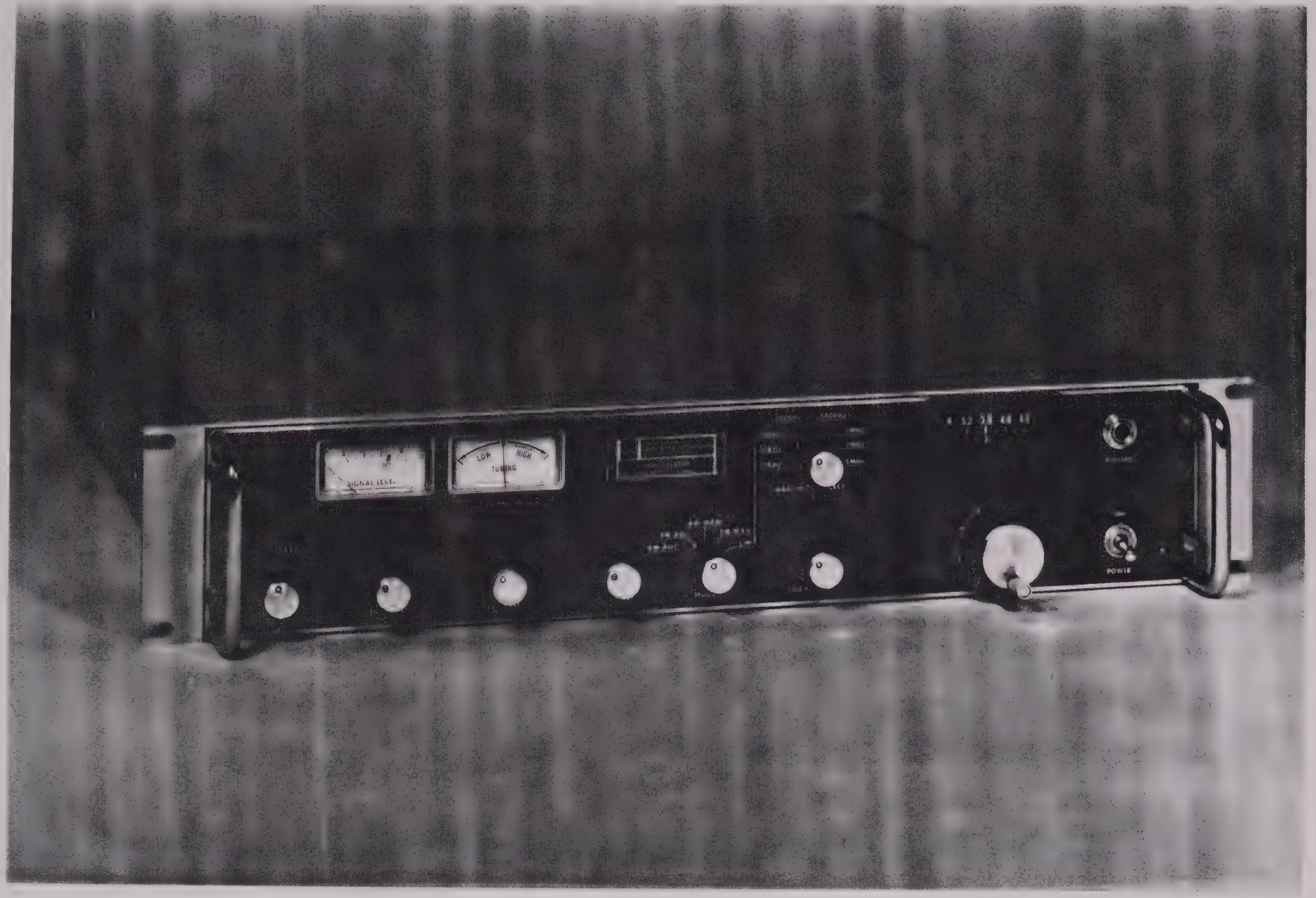


FIGURE 1-1. TYPE DMS-107-1 DEMODULATOR, FRONT VIEW

SECTION I

GENERAL DESCRIPTION

1.1 ELECTRICAL CHARACTERISTICS

1.1.1 The CEI Types DMS-107 and DMS-107-1 Demodulators are all solid state units designed to detect AM, FM, CW, and Pulse signals obtained from the output of various wideband tape recorders such as the RCA TR-22A and the Ampex 901. The Type DMS-107 Demodulator incorporates IF bandwidths of 20, 50, 100, 300, and 500 kHz, plus 1, 2, and 3 MHz; the DMS-107-1 employs the same five narrow bandwidths but incorporates wide IF bandwidths of 1, 3, and 5.5 MHz. Both units are tunable over an input frequency range of 100 kHz to 10 MHz in a single band. Incoming signals within this range are converted up to 21.4 MHz prior to demodulation. Extensive use has been made of integrated circuits throughout for high reliability and a substantial reduction in size. A rear-apron connector allows the units to be operated with an external local oscillator for improved accuracy and stability. Selection of the desired local oscillator, either internal or external, is by means of a front-panel switch. The internal local oscillator can be locked to a desired frequency using the digital automatic frequency control (DAFC) capability of an associated CEI frequency counter such as the DRO-302A. In addition to providing a six-digit display of the tuned frequency, the counter will hold the associated demodulator within ±100 Hz of the set frequency for an indefinite period. Automatic and manual gain control of the demodulators is available in all modes with the exception of CW. Additional front panel controls provide a means of adjusting the gain and the frequency as well as the desired IF bandwidth.

1.1.2 Signal outputs from the demodulators include a predetection IF output, an analog tuning voltage output from a potentiometer linked to the gear train, a video output, an AGC output, an FM video output, and a 600-ohm audio output. The audio signal is available at a front panel headphone jack as well as a rear-apron terminal board. Pertinent specifications for the DMS-107 and DMS-107-1 Demodulators are listed in Table 1-1.

1.2 MECHANICAL CHARACTERISTICS

1.2.1 A front view of a typical DMS-107 Demodulator is shown in Figure 1-1. Mounted on the front panel are the following controls and indicators: LO SELECT, MODE, BANDWIDTH SELECT and POWER switches, LEVEL ADJUST, VIDEO GAIN, AUDIO GAIN and FINE TUNING controls, the main tuning knob and tape dial, and the SIGNAL LEVEL and TUNING meters.

1.2.2 The rear apron of a typical DMS-107, shown in Figure 1-2, mounts the following BNC-type connectors: RF INPUT, 0.1-10 MHz J1; SM OUTPUT J2; LO

OUTPUT J3; EXT LO INPUT J4; DAFC J5; IF OUTPUT J6; ANALOG OUTPUT J7; VIDEO OUTPUT J8; FM DET OUTPUT J9; and AGC OUTPUT J11. Also mounted on the rear apron are terminal board TB1, line fuses F1 and F2, the 115/230 Vac power selector switch S5, and the permanently connected power cord. The front panel, main chassis, rear apron and top and bottom dust covers of the demodulators are constructed of aluminum. The front panel is finished with grey enamel and is overlaid with a black-anodized etched bezel. The DMS-107 and DMS-107-1 Demodulators are composed of 15 subassemblies. Two of these, the input mixer A1, and the IF output amplifier A2, are constructed on silver-plated brass chassis which have been gold-flashed to prevent tarnishing. The local oscillator assembly A3, is housed in an aluminum chassis which is 5/32 inches thick for maximum shielding. The eight IF amplifiers, the audio and video amplifiers, and the two power supply modules are constructed on etched circuit boards which plug into receptacles on the main chassis. In addition, the main chassis contains an extender card which enables a technician to raise the IF amplifier boards above the chassis level for maintenance purposes. Critical dimensions of a typical DMS-107 are: 19 inches wide, 3.5 inches high, and 18.95 inches deep including the handles. The units weigh approximately 18.5 pounds.

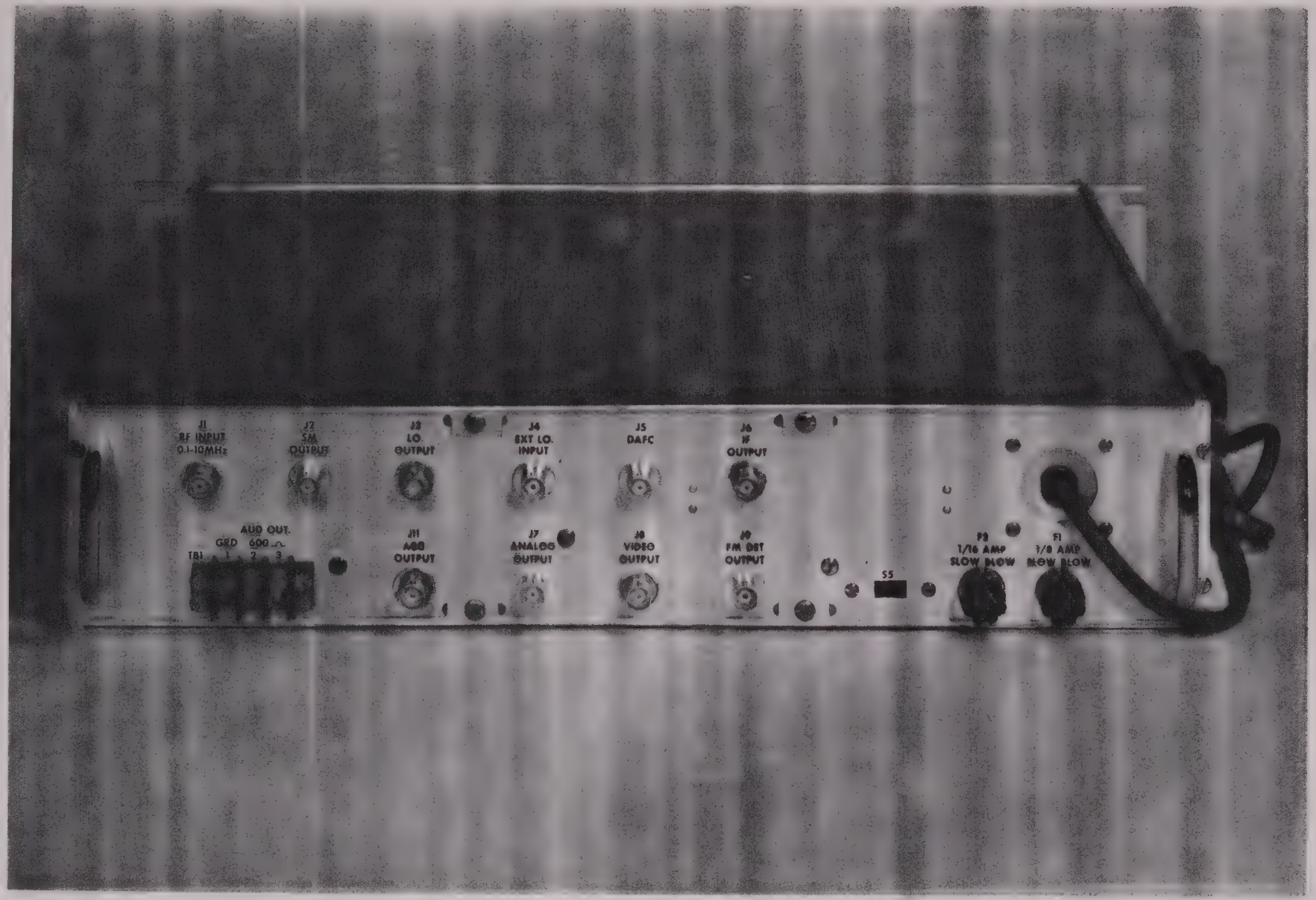


FIG. 1-2. TYPE DMS-107 DEMODULATOR, REAR VIEW.

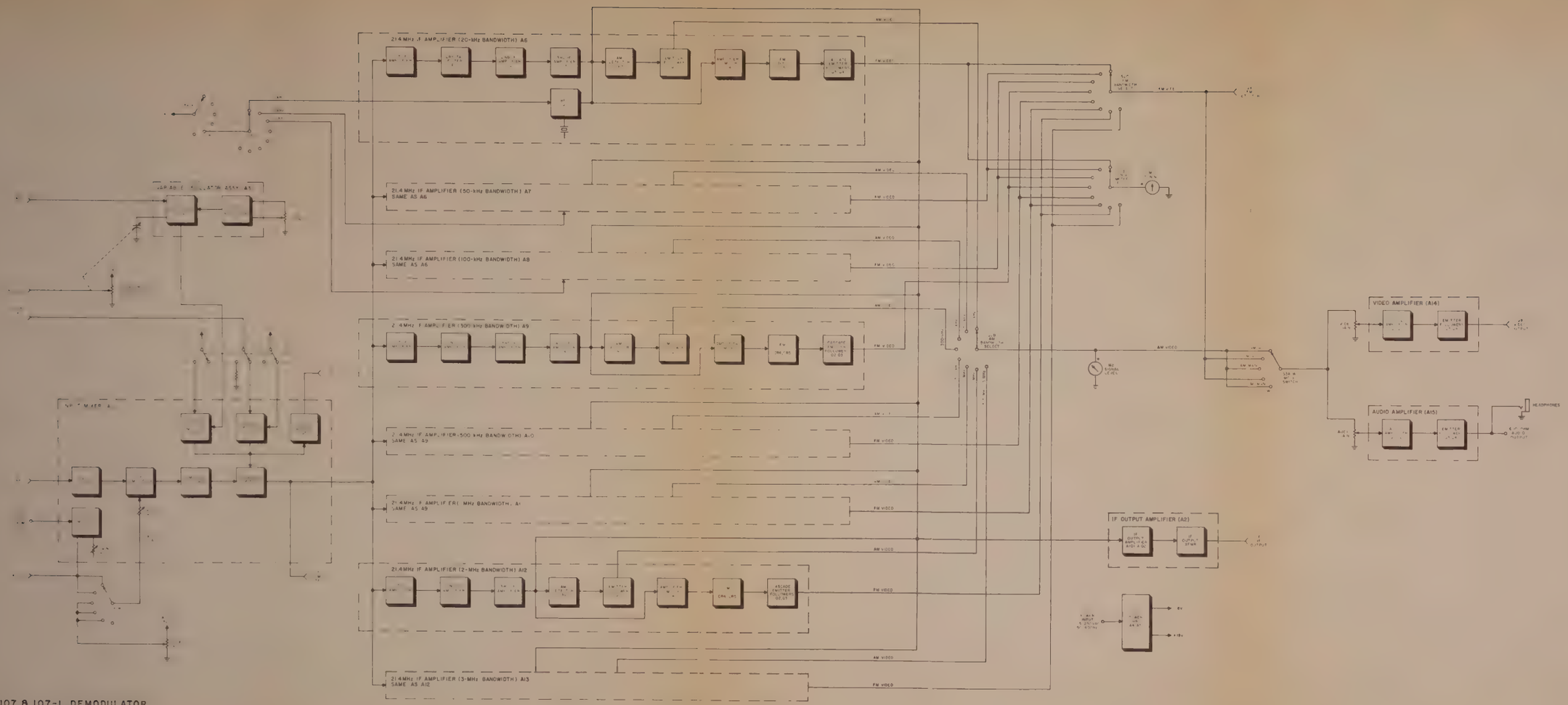


FIG. 2-1. TYPES DMS-107 & 107-1, DEMODULATOR FUNCTIONAL BLOCK DIAGRAM.

SECTION II

CIRCUIT DESCRIPTION

2.1 GENERAL

The following paragraphs contain complete electrical and functional descriptions of the circuits in the DMS-107 and DMS-107-1 Demodulators. The unit numbering system is used for electrical components which means that parts on subassemblies and modules carry a prefix before the usual class letter and number of the item (such as A2C1 and A7R1). These subassembly prefixes are omitted in the electrical descriptions except in those cases where confusion might result from their omission. Reference should be made to the functional block diagram, Figure 2-1, and the schematic diagrams, Figure 6-1 through 6-8, at the rear of this manual.

2.2 FUNCTIONAL DESCRIPTION

2.2.1 The DMS-107 and DMS-107-1 Demodulators are single-conversion units designed to demodulate input signals in the 100-kHz to 10-MHz frequency range. These signals are supplied by associated wideband tape recorders. The output center frequency from the tape recorders is converted up to 21.4 MHz before demodulation.

2.2.2 Incoming signals to the demodulators are fed from jack J1 to a wideband, fixed-tuned, low-pass filter having a 10-MHz roll-off. A dual, insulated-gate, field effect transistor (A1Q6) is used to amplify the signals from the input filter. This stage is gain controlled by the application of AGC voltage to gate number 2. Amplified output signals are coupled to emitter follower A1Q1 which, in turn, feeds them to the balanced mixer, A1U1. This module heterodynes the IF input with either the internal local oscillator signal or with an external LO depending on the setting of the front-panel LO SELECT switch S1. The internal local oscillator, A3A1A1Q1, is operated at a frequency 21.4 MHz above the incoming signal. Tuning of the internal LO is by means of a variable capacitor which is mechanically ganged to the gear train. Output signals from the internal LO are fed to the input mixer chassis. These signals are amplified by a cascode circuit consisting of A1Q2 and A1Q4. Transformer coupling is used between the cascode amplifier and the balanced mixer input. A portion of the LO signal is fed through buffer amplifier A1Q5, to the rear-apron LO output connector, J3. External LO signals are connected to jack A1J3 and fed through buffer amplifier A1Q3 to the balanced mixer when the EXT position is selected by switch S1. Sum and difference frequencies produced by the mixing action are taken from the balanced mixer and fed to the IF amplifier inputs and to the signal monitor output jack A1J5. Since the input networks in the IF amplifiers are tuned to the difference frequency of 21.4 MHz, only this frequency is passed.

2.2.3 The nine IF amplifiers utilized by the DMS-107 and DMS-107-1 Demodulators can be arranged in three groups: narrow bandwidths, medium bandwidths, and wide bandwidths. The narrow category includes the 20, 50, and 100 kHz bandwidths. Bandwidths of 300 kHz, 500 kHz, and 1 MHz can be placed in the medium group. The wide category includes the 2, 3, and 5.5 MHz bandwidths. Close similarities exist between the IF amplifiers in each group. Therefore only one IF strip from each group will be discussed in detail in both the electrical and functional explanations.

2.2.4 The 21.4-MHz IF output signal from the balanced mixer is simultaneously fed to the input of all the IF strips in the demodulators. The desired bandwidth is selected by switch S2 on the front panel. This switch performs several functions: it applies +18V to the circuits in the selected amplifier; it connects the AM or FM video signal from the selected strip to its respective position on a section of the MODE switch; it connects the TUNING meter to the selected FM video output; and it routes operating voltage to the BFO circuits in the 20, 50, and 100 kHz bandwidth IF amplifiers when the CW mode is selected.

2.2.5 Incoming signals to the 20-kHz bandwidth IF strip are coupled to the input amplifier stage, A6U1. This integrated circuit incorporates a cascode network operating as a linear amplifier. Amplified output signals from A6U1 are fed through a single-tuned network to bandpass filter FL1. This component sets the overall bandwidth of this narrowband IF strip. Two additional integrated circuits, A6U2 and A6U3 amplify the IF signal before feeding it to the detector. A second single-tuned circuit is located between these two amplifiers. Intermediate frequency signals developed across the single-tuned circuit at the output of A6U3 are demodulated by A6CR2 and fed through emitter follower A6Q2 to section S2B of the IF BANDWIDTH switch. A portion of the predetected IF signal is fed through a diode switch to the IF output amplifier, A2. This same predetection IF signal is also coupled to a fourth integrated circuit, A6U4, which functions as an amplifier and limiter preceding the FM detector. A single-tuned circuit couples the limited signal from A6U4 to the self-contained crystal discriminator, A6U5. Demodulated FM signals are fed through cascaded emitter followers A6Q3 and A6Q4 to section S2C of the BANDWIDTH SELECT switch. The FM video signal is subsequently fed to rear-apron jack J9 and to the FM positions on MODE switch section S3A-W. This switch selects the desired signal (and gain control mode) and feeds it to the audio and video amplifiers.

2.2.6 Selection of the 300-kHz bandwidth results in the amplification of the 21.4-MHz signal by four IF stages, A9U1 through A9U4. Double-tuned circuits are employed between the integrated circuits to set the overall bandwidth. A single-tuned network develops the output signal from A9U4 and feeds it to the AM detector, A9CR2. Predetection IF signals obtained from this same network are fed to the IF output amplifier, A2, and to amplifier/limiter, A9U5. Demodulated AM signals are coupled through emitter follower A9Q1 to the BANDWIDTH SELECT and MODE

switches. FM signals are amplified and limited by A9U5 and fed to the discriminator which includes diodes CR4 and CR5. Cascade emitter followers A9Q2 and A9Q3 feed the FM video output to the BANDWIDTH SELECT and MODE switches.

2.2.7 The 2-MHz bandwidth IF strip, A12, (DMS-107 only) employs three integrated circuits A12U1 through A12U3 which function as linear IF amplifiers. The bandwidth is set by two triple-tuned networks located between the first two IF stages and a single-tuned network at the output of A12U3. Predetection IF signals are taken from the latter circuit and fed to the IF output amplifier, A2, and to A12U4, the FM amplifier/limiter. Diode A12CR2 demodulates AM signals and feeds them through A12Q1, an emitter follower, to switches S2 and S3. A Foster-Seeley discriminator including diodes A12CR4 and A12CR5 demodulates the FM signal and feeds it through cascaded emitter followers A12Q2 and A12Q3 to the 2-MHz position on switches S2C and S2D.

2.2.8 Switch section S2D applies the selected FM video signal to the front-panel TUNING meter while switch section S2B applies the selected AM signal to the SIGNAL STRENGTH meter and to the AM positions on MODE switch section S3A-W. The latter switch selects the desired signal, either AM, FM, or CW, and feeds it to the AUDIO and VIDEO GAIN controls.

2.2.9 The audio and video amplifier modules (A14 and A15) are functionally identical. Each utilizes a voltage amplifier, Q1 and Q2, driving complementary symmetry emitter followers Q3 and Q4. The audio module also includes an output transformer to provide the 600-ohm output impedance. Audio signals are fed to the front panel PHONES jack and to terminal board TB1 on the rear apron. Video output signals are fed to jack J8 on the rear apron.

2.2.10 Predetection IF signals from the selected strip are fed to the input of IF output amplifier, A2. This module consists of a pair of transistors, A2A1Q1 and A2A1Q2, operating in a cascode circuit. Transformer coupling is used between the amplifier and the rear-apron IF OUTPUT connector J6.

2.2.11 The power supply for the DMS-107 and DMS-107-1 Demodulators consists of various main chassis components plus power supply regulators A4 and A5 which supply -18V and +18V respectively.

2.3 TYPE 79586 INPUT MIXER

The schematic diagram for the input mixer is Figure 6-1; its reference designation prefix is A1. The input mixer consists of a single etched circuit board mounted within a brass chassis. The board carries the reference designation prefix A1A1. Incoming signals from associated wideband tape recorders are fed to the input mixer from rear-apron connector J1 through cable W1.

2.3.1 Input Filter and Amplifier. - Preceding the input filter circuit is a 16-dB resistive pad made up of R39, R58, and R59 which attenuates the incoming signal. Following the attenuator is a three-pole, broadband low-pass filter consisting of capacitors C18 through C20 and inductors L1 through L3. The filter has a 10-MHz roll-off frequency and attenuates any signals above this point. Resistor R48 provides the proper load to set the desired circuit Q. Blocking capacitor C26 couples the input signal to gate number 1 (pin 3) of broadband amplifier Q6. This stage is a dual, insulated-gate, field effect type (IGFET) operating in a common source circuit. It is gain-controlled by the application of AGC voltage to gate number 2 (pin 2). The AGC network, located on the input mixer board, is described in paragraph 2.3.6. Amplified output signals developed across drain load resistor R55 are coupled through dc-blocking capacitor C1 to emitter follower Q1. This stage acts as a low-impedance source driver for the balanced mixer. Coupling between Q1 and the mixer is by means of C8.

2.3.2 Local Oscillator Selection. - The DMS-107 and DMS-107-1 Demodulators are designed to operate with an internal local oscillator or an external oscillator source. When the LO SELECT switch is placed in the INT position the following occurs: section S1A-W connects the external source to ground through resistor R13 on the main chassis; section S1A-X applies +18V to pin B of jack J12 which activates the internal LO transistor A3A1A1Q1 ;switch section S1A-Y applies -18V to the local oscillator amplifier circuit, turning it on.

2.3.3 Local Oscillator Amplifier and Balanced Mixer. - The internal local oscillator signal is fed to the input mixer chassis through jack J2. It is coupled through dc-blocking capacitor C2 to the base of Q2. This transistor operates in conjunction with Q4 in a cascode circuit. Capacitor C4 and resistor R9 feed back out-of-phase signal voltage from the collector to the base of Q2 to set the amplifier gain. Transformer T1 matches the high output impedance of Q4 to the lower input impedance of the balanced mixer U1, and functions as the output load for the cascode circuit. The mixer is a completely self-contained, sealed module which heterodynes the selected local oscillator signal with the input from the associated tape recorder. It completely suppresses the RF and LO inputs producing only the sum and difference of the two. Since the succeeding IF amplifiers are tuned to the difference frequency of 21.4 MHz, only this frequency is passed. The IF output from U1 is fed through a 3-dB resistive pad, consisting of R27, R28, and R29 to the input of all the IF amplifiers included in the demodulators. A portion of the IF signal is fed to the signal monitor output jack, J5 through a 9-to-1 voltage divider, R37 and R39.

2.3.4 External LO Buffer Amplifier. - Transistor Q3 functions as a local oscillator buffer amplifier for the external source. Placing switch S1 in the EXT position results in external LO signals being applied to Q3 through jack J3 on the mixer chassis, a 25-dB pad made up of R6, R7, and R8, and dc-blocking capacitor C5. The value of R8 is factory selected to compensate for gain variations of

different 2N5109 transistors. Transformer T1 forms the collector load for Q3 when the external LO source is used.

2.3.5 Local Oscillator Output Buffer. - A portion of the selected LO signal is taken from the secondary of transformer T1 and coupled to the base of LO output buffer stage, Q5, through blocking capacitor C13. A ten-to-one voltage divider, R23 and R24, drops the LO signal amplitude prior to applying it to Q5. Factory selection of R24 also compensates for gain variations in the buffer transistors. Amplified LO signals developed across the primary of transformer T2 are coupled through this component and a 5-dB pad (R34, R35, R36) to LO output connector J6 on the mixer chassis. Cable W4 then feeds it to rear-apron LO OUTPUT jack J3.

2.3.6 AGC Amplifier. - Gain control voltage for mixer input stage Q6 in the AM-AGC or FM-AGC modes is provided by the circuit containing IC U2. This semiconductor device receives AM video signals from the AM detector circuit in the selected IF amplifier, senses the amplitude and supplies a dc voltage change which is applied to gate number 2 (pin 2) of the IGFET. These video signals are fed to the input mixer through terminal E1. Resistor R40 isolates the AGC network from the detector circuits to prevent loading. Filtering of the video input is provided by C22. Silicon diode CR1 supplies an additional 0.6-volt delay in the AGC loop in addition to the 1.2-volt dropped by the AM detectors and the base-emitter junctions of the emitter followers in the AM video output circuits of each IF amplifier. This diode also prevents any negative biasing voltage present on the AM video output emitter follower circuits from reaching the IC. An operational amplifier is used to supply the AGC output signal. Incoming signals are applied to the inverting input with output signals taken from pin 6. The gain of the IC is set by the feedback signal provided from the junction of dividing resistors R42 and R45. The dc offset and consequently the bias level at pin 6 is adjusted by potentiometer R43. The gain control signal, a decreasing voltage with increasing signal strength, is applied to pin 2 of Q6 through C7, isolation resistor R53, and potentiometer R43. The latter control provides a means of adjusting the gain of Q6 to compensate for differences in electrical characteristics of various 3N140 transistors.

2.4 TYPE 71272 VARIABLE OSCILLATOR ASSEMBLY

The schematic diagram for the entire oscillator assembly is shown in Figure 6-3; reference designation prefix A3 has been assigned. Two separate components make up the assembly: the type 7755 local oscillator and the type 8587 gear train. The local oscillator schematic diagram is Figure 6-4; it carries the reference designation prefix A3A1. An exploded view of the gear train is shown in Figure 5-3; the gear train is subassembly A3A2 of the variable oscillator.

2.4.1 Type 7755 Local Oscillator. - The majority of the oscillator components are mounted on an etched board inside the oscillator assembly. This board carries

the reference designation prefix A3A1A1. Tuning of the oscillator over the frequency range of 21.5 MHz to 31.4 MHz is by means of the main tuning capacitor, C1, with variable capacitor C2 functioning as its trimmer. Transistor A1Q1 operates in a modified Clapp configuration with regenerative emitter-to-base feedback provided by A1C7. Variable inductor L1 is the main tank circuit inductor with A1L1 functioning as its trimmer. Vernier tuning of the oscillator is done by means of the front-panel FINE TUNING potentiometer, R10, and varactor A1CR2 on the local oscillator board. The capacitance of this semiconductor device varies inversely with the reverse voltage applied across it. Fine tuning voltage is supplied by the network consisting of Zener diode A1VR1, capacitor A1C1 and diode A1CR1. The Zener diode provides regulation of the positive supply voltage while A1C1 acts as a filter. Silicon diode A1CR1 provides temperature compensation for varactor A1CR2. The negative temperature coefficient of the silicon diode counteracts a tendency of the varactor capacitance to increase at elevated temperatures. Digital automatic frequency control voltage from an associated frequency counter is fed to the oscillator through rear-apron connector J5 and feedthrough capacitor A3A1C6. Oscillator output signals are taken from the junction of capacitors C8 and C9 and fed to connector A3A1J1. These capacitors form part of a voltage divider that taps down the tank circuit to prevent loading of the oscillator. Cable W2 feeds the oscillator signals to the input mixer chassis (see paragraph 2.3.3).

2.4.2 Type 8587 Gear Train. - An exploded view of the gear train is shown in Figure 5-3. Mounted on the gear train is a precision helipot, A2R1, that provides an analog tuning voltage output which is applied to jack J7 on the rear apron.

2.5 TYPE 72277 21.4-MHz IF AMPLIFIER (20 kHz BW)

2.5.1 IF Amplifiers and Crystal Filter. - Figure 6-7 is the schematic diagram for this IF amplifier; reference designation prefix A6 has been assigned. Incoming 21.4-MHz IF signals are coupled through module pin 20B and capacitor C1 to pin one of U1, the first of three integrated circuit IF amplifier stages. Each IC contains a cascode circuit operating as a linear amplifier. Output signals are taken from pin six of U1 which is tuned to the center frequency by inductor L2. A capacitive voltage divider formed by C7 and C8 matches the output impedance of the tuned circuit to the input impedance of bandpass filter FL1. This is a crystal filter that sets the bandwidth of the amplifier at 20 kHz. Additional amplification of the IF signal is provided by IC's U2 and U3. The output of each of these amplifiers is also adjusted to the IF center frequency by single-tuned circuits, containing in this case inductors L3 and L5, respectively. Resistors R3, R9, and R14 in series with the outputs of U1, U2, and U3, act as parasitic suppressors.

2.5.2 AM Detector and AM Output Emitter Follower. - Amplified output signals from U3 are coupled through dc-blocking capacitor C25 to AM detector diode CR2. This semiconductor demodulates the IF signal and applies it to emitter follower Q2. Capacitor C30 filters the detector output. Silicon diode CR1 clamps the base of Q2 at 0.6 volts to compensate for the base-emitter voltage drop of the transistor.

This is done so that the AM video output will be zero-volts with no signal input. Clamp voltage is applied to the diode through R16 and L5. Note that the clamp voltage appears on both sides of the detector so that its operation is not affected. Video output signals from emitter follower Q2 are filtered by L6 and C37 to remove any remaining 21.4-MHz IF component from the video output. AM output signals are fed from module pin 16A to the 20 kHz position on switch S2B. Resistor R26 functions as both a parasitic suppressor and current limiter to protect Q2 in the event the AM output is shorted to ground.

2.5.3 Predetection IF Output. - Predetection IF output signals are taken from the junction of voltage dividing capacitors C27 and C28 and fed through diode CR3 and blocking capacitor C31, to module pin 21A. When any IF bandwidth other than the 20-kHz wide strip is selected, diode CR3 is reverse biased and appears as an open circuit in the predetection path. This is done so that the selected predetection signal is not affected by the tuned circuits in any other IF amplifier. The reverse bias voltage is applied to the anode of CR3 through module pin 19A and resistor R19. When the 20-kHz bandwidth is selected, +18 volts is applied to CR3 through module pin 18A and resistor R17 turning the diode on. Predetection IF signals from this strip are then passed to the IF output amplifier, A2.

2.5.4 Beat Frequency Oscillator. Transistor Q1 operates in an ultraudion Colpitts crystal oscillator circuit at a frequency of 21.4 MHz. Regenerative feedback from collector to base is through crystal Y1 which also supplies the 90-degree phase shift necessary to sustain oscillation. The BFO is turned on when the CW mode is selected in conjunction with the 20 kHz IF bandwidth. Operating voltage is applied to the circuit through module pin 4B, decoupling resistor R12 and biasing resistor R25. Oscillator output signals are taken from the collector and coupled to the IF signal path through a capacitive voltage divider made up of C22 and C23, and coupling capacitor C21. The divider sets the signal amplitude while C21 provides the desired degree of coupling without loading the IF tank circuit.

2.5.5 FM Limiter and Discriminator. - A capacitive voltage divider made up of C27 and C28 taps down the final IF tank circuit to provide the input signal to the FM limiter and discriminator. Integrated circuit U4 functions as an FM amplifier/limiter. Incoming 21.4-MHz IF signals are coupled through dc-blocking capacitor C36 and parasitic suppressor R27 to the high level input, pin 1. Limiting action within the IC removes any amplitude variations from the IF signal so that the input to the discriminator varies only in frequency. A single-tuned circuit consisting of inductor L7 and capacitors C40 and C41 develops the output signal from U4. These signals are taken from the junction of the two capacitors and fed to the FM discriminator, U5. This is a completely self-contained, sealed module that demodulates the incoming FM signals and feeds them to the base of emitter follower Q3. Capacitor C48 filters the discriminator output. Emitter follower Q3, a PNP transistor, is direct-coupled to Q4, an NPN transistor, in a non-inverting cascade configuration. The FM video output signal is developed across R35 and a low-pass filter made up of L9 and C49. This circuit removes any 21.4-MHz component

remaining in the FM video output. From module pin 12A, the FM signal is fed to the 20-kHz position on IF BANDWIDTH switch section S2C. In addition, a portion of the video output is fed to the front-panel TUNING meter through section S2D.

2.6 TYPES 72278 AND 72279 21.4-MHz IF AMPLIFIERS

The schematic diagram for the type 72278, 50-kHz bandwidth IF strip is Figure 6-8; its reference designation prefix is A7. The type 72279 IF strip has a bandwidth of 100 kHz. Its schematic diagram is Figure 6-9 and it carries the reference designation prefix A8. With the exception of the bandwidth of crystal filter (FL1), these IF strips are electrically and functionally identical to the 20-kHz bandwidth IF amplifier described in paragraph 2.5.

2.7 TYPE 72280 21.4-MHz IF AMPLIFIER (300 kHz BW)

Figure 6-10 is the schematic diagram for this IF strip; A9 is its reference designation prefix.

2.7.1 IF Amplifiers and AM Detector. - Four type MC-1550G integrated circuits, U1 through U4, function as IF amplifiers. Three double-tuned, LC networks are used to set the overall 300-kHz bandwidth. Potentiometer R7 connected to IC U2 provides a means of adjusting the IF gain during initial alignment and test. Capacitive voltage dividers are used to match the output impedance of each double-tuned circuit to the input impedance of each IC. Amplified output signals developed across the single-tuned circuit following U4 are demodulated by diode CR2, filtered by capacitor C40, and fed through emitter follower Q1 and module pin 16A, to the 300-kHz position on switch section S2B.

2.7.2 Predetection IF Output and FM Limiter. - Predetection IF output signals are supplied through module pin 21A. This output, which is taken from the junction of capacitive voltage dividers C35 and C36, is fed through switching diode CR3 and capacitor C41 to the IF output amplifier, A2. Diode CR3 and its associated components in this IF strip performs the same functions as diode A6CR3 and associated parts as described in paragraph 2.5.3. Input signals to the FM limiter, U5, are taken from the predetection circuit and coupled through parasitic suppressor R31 and blocking capacitor C45 to pin 1. Integrated circuit U5 removes amplitude variations from the input signal and feeds it from pin 6 through R35 and C51 to the FM discriminator.

2.7.3 FM Discriminator. - The FM discriminator is a modified Foster-Seeley circuit. Limited 21.4-MHz IF signals are fed through inductor L15 to the primary of discriminator transformer T1, both of which are tuned to the center frequency. Only a small percentage of the limiter output appears across the transformer primary due to the dividing action of L15 and the parallel combination of L16 and the primary winding. Capacitor C53 couples the RF reference voltage from the input to the secondary of T1. The secondary is electrically center-tapped by capacitors C54 and C55. Diodes CR4 and CR5 demodulate the FM signal and feed it through

cascaded emitter followers Q2 and Q3 to module pin 12A. A low-pass filter made up of L17 and C59 removes any remaining 21.4 MHz component from the video output. Resistor R44 functions as a parasitic suppressor. Video output signals from pin 12A are fed to the 300-kHz position on switch sections S2C and S2D.

2.8 TYPES 72281 and 72282 21.4-MHz IF AMPLIFIERS

The schematic diagram for the type 72281 IF amplifier is Figure 6-11; A10 is its reference designation prefix. This IF strip has a bandwidth of 500 kHz. The type 72282 IF amplifier schematic diagram is Figure 6-12; this 1 MHz bandwidth strip carries the reference designation prefix A11. Both of these IF amplifiers are functionally identical to the 300-kHz bandwidth IF strip. The values of some of the components in the bandwidth determining networks have been changed to provide the wider response.

2.9 TYPE 72283 21.4-MHz IF AMPLIFIER (2 MHz BW)

This IF amplifier carries the reference designation prefix A12 and is used only in the DMS-107. Figure 6-13 is the schematic diagram for the module.

2.9.1 IF Amplifiers and Bandpass Networks. - Amplification of the 21.4-MHz IF signals is provided by linear amplifier integrated circuits U1 through U3. The first and second IF stages are coupled by a triple-tuned bandpass network containing inductors L2, L3, and L4. A similar network is employed between IF stages U2 and U3. Amplified output signals from U3 are developed across a single-tuned circuit containing inductor L11. The resultant response produced by the combination of the two triple-tuned circuits and the single-tuned network is 2-MHz wide at the 3-dB points.

2.9.2 AM Detector and Output Emitter Follower. - Diode CR2 demodulates the amplified output signals from U3. These AM video signals are then filtered by C32 and fed through emitter follower Q1 to module pin 16A. Filter components L12 and C36 remove any remaining IF signal from the video output. Silicon diode CR1 clamps the base of Q1 to compensate for the 0.6 volt base-emitter voltage drop.

2.9.3 Predetection IF Output and FM Limiter. - A capacitive voltage divider made up of C29, C30, and C31, provides a predetection IF signal at the junction of C29 and C30 which is fed through switching diode CR3 and capacitor C37 to module pin 21A. A portion of this predetection signal is also fed through parasitic suppressor R38 and blocking capacitor C51 to pin 1 of the FM limiter IC, U4. This integrated circuit removes the amplitude variations from the IF input and then feeds it to the FM discriminator.

2.9.4 FM Discriminator and Output Emitter Follower. - Demodulation of FM input signals is by means of a modified Foster-Seeley circuit containing diodes CR4 and CR5. The limited output from U4 is fed to the discriminator through an

inductive voltage divider made up of L16 and the parallel combination of L15 and the primary of transformer T1. Reference signals for the discriminator transformer secondary are coupled from the input through C45. Inductor L16 and the transformer are both tuned to the IF center frequency. Demodulated FM signals are filtered by C48 and fed through cascaded emitter followers Q2 and Q3 plus inductor L18 and parasitic suppressor R35 to module pin 12A. The inductor and its distributed capacity filter any remaining 21.4-MHz RF component from the FM video output.

2.10 TYPES 72284 AND 72312 21.4-MHz IF AMPLIFIERS

The bandwidth of the type 72284 IF amplifier is 3 MHz; Figure 6-14 is the schematic diagram for the subassembly. The reference designation prefix A13 has been assigned for the DMS-107 whereas A12 is the reference designation prefix in the DMS-107-1. The type 72312 IF strip has a bandwidth of 5.5 MHz; A13 is its reference designation prefix. This module is used only in the DMS-107-1. Both IF strips are functionally identical to the 2-MHz bandwidth amplifier described in paragraph 2.9. The values of some of the components in the bandwidth determining networks have been changed to provide the wider response.

2.11 TYPE 7366 VIDEO AMPLIFIER

The video amplifier carries the reference designation prefix A14; Figure 6-16 is the schematic diagram for the module. It consists of an NPN transistor, Q1, dc-coupled to Q2, a PNP transistor. These two stages provide the necessary voltage gain to drive complementary symmetry emitter followers Q3 and Q4. The latter two transistors are biased to operate Class B. Negative dc feedback to set the overall gain of the amplifier is taken at the junction of emitter resistor R11 and R12 and fed to the emitter of Q1 through R6. This resistor in conjunction with R5 determines the amount of feedback. The tolerance of both parts is 1 percent to prevent variations in gain between various 7366 video amplifiers. Silicon diodes CR1 and CR2 determine the idling currents of Q3 and Q4, and eliminate crossover distortion while preventing thermal runaway. Since the transistors and diodes are made of the same material they exhibit the same temperature coefficient of voltage characteristics. A rise in temperature lowers the base-emitter voltage drop of the transistors tending to make them conduct harder. However, the diode voltage drop decreases by the same amount so that the voltage applied to the bases also decreases, holding the collector current nearly constant. Resistors R11 and R12 are included in the emitter circuits of Q3 and Q4 to provide additional feedback with low-input signal levels. These resistors eliminate distortion introduced by the difference between the voltage drops of CR1 and CR2 and the base-emitter junctions of Q3 and Q4. With little or no input signal the drop across the resistors is a few tenths of a volt. Large input signals would cause the drop to become excessive except that CR3 and CR4 become forward biased and limit the drop to approximately 0.6 volt. The low-impedance output of the complementary symmetry emitter followers is matched to the higher impedance output terminals by means of R13. This

resistor has the additional effect of preventing amplifier damage if the output terminal is accidentally shorted to ground. Resistor R14 provides a dischange path to ground for C6 if the amplifier is operated without a dc load. Capacitor C3 provides additional drive for Q4 through R9 during the negative-going portion of the input signal. The bases of Q3 and Q4 are coupled through capacitor C4 to equalize the input signal level to the two stages. The output signal from the module is fed to the rear-apron VIDEO OUTPUT jack, J8.

2.12 TYPE 7440 AUDIO AMPLIFIER

The schematic diagram for the audio module is Figure 6-7; its reference designation prefix is A5. The module consists of NPN transistor, Q1, dc-coupled to Q2, a PNP transistor. These two stages provide the necessary voltage gain to drive complementary symmetry emitter followers Q3 and Q4. The latter two transistors are biased to operated Class B. Negative dc feedback to set the overall gain of the amplifier is taken at the junction of emitter resistors R11 and R12 and fed to the emitter of Q1 through R7. This resistor in conjunction with R5 determines the amount of feedback. The tolerance of both parts is 1 percent to prevent variations in gain between various 7440 audio amplifiers. Silicon diodes CR1 and CR2 determine the idling currents of Q3 and Q4, and eliminate crossover distortion while preventing thermal runaway. Since the transistors and diodes are made of the same material they exhibit the same temperature coefficient of voltage characteristics. A rise in temperature lowers the base-emitter voltage drop of the transistors tending to make them conduct harder. However, the diode voltage drop decreases by the same amount so that the voltage applied to the bases also decrease, holding the collector current nearly constant. Resistors R11 and R12 are included in the emitter circuits of Q3 and Q4 to provide additional feedback with low-input signal levels. These resistors eliminate distortion introduced by the difference between the voltage drops of diodes CR1 and CR2 and the base-emitter junctions of Q3 and Q4. With little or no input signal the drop across the resistors is a few tenths of a volt. Large input signals would cause the drop to become excessive except that CR3 and CR4 become foward biased and limit the drop to approximately 0.6 volt. The low-impedance output of the complementary symmetry emitter follower is matched to the higher impedance output terminals by means of R13. Additional negative feedback to stabilize the amplifier is produced by the current flow through the primary of output transformer T1 and resistor R6. The audio signal from pin 6 is fed to the front-panel PHONES jack, J10. The 600-ohm audio signal is fed to rear-apron terminal board TB1, pins 2 and 3.

2.13 TYPE 72300 IF OUTPUT AMPLIFIER

The schematic diagram for this subassembly is Figure 6-2; the reference designation prefix A2 has been assigned. Predetection 21.4-MHz IF signals are fed directly to the amplifier from the selected IF strip. From jack J1 they are fed through blocking capacitor A1C1 to the base of IF amplifier A1Q1. Resistor A1R1 terminates the input. Transistor A1Q1 is directly coupled to A1Q2 in a

conventional cascode configuration. The amount of ac degeneration and consequently the gain of the amplifier, is set by selecting a value for resistor R6 which will produce a 100-mV minimum output with a 30-mV input to any of the selected IF amplifiers. Output transformer A1T1, the collector load for A1Q2, provides the 50-ohm output impedance and develops an amplified output signal which is fed to jack J2. Cable W5 and plug P9 feed the predetection output to rear-apron connector J6.

2.14 POWER SUPPLY

The power supply for the types DMS-107 and DMS-107-1 Demodulators consists of various main chassis components plus modules A4 and A5. The 115/230 Vac, 50-400 Hz ac input is fed from plug FL1P1 through line filter FL1, line fuse F1, and power switch S4 to the two primary windings of power transformer T1. Rear-apron mounted power selector switch S5 connects the primary windings in parallel for 115-volt operation and in series for 230-volt operation. Overload protection for the units when the latter input power is used is provided by fuse F2. The power transformer has two secondary windings. One of these, 5-6-7, supplies 25 Vac for the two power supply regulators. The remaining winding, 8-9, supplies 5.0 Vac for the dial lamps.

2.14.1 Type 76160 -18V Power Supply Regulator. - The schematic diagram for this plug-in module is Figure 6-5; reference designation prefix A4 has been assigned. Transistor Q1 functions as a series regulator whose conduction is controlled by Q2, a voltage amplifier. Transistors Q3 and Q4 are connected in a differential amplifier configuration. The base of Q4 is held at a fixed potential by Zener diode CR2. The base of Q3 is connected to the regulated output through a sampling network consisting of fixed resistors R5 and R7, and potentiometer R6. The signals at the bases of the two stages are summed in the common emitter circuit to produce a signal at the collector of Q3 that is the difference between the two inputs. Thus, any fluctuation in the output voltage is sensed by Q3, amplified and inverted and fed to the base of Q2. For example, if the output voltage rises (becomes more negative) Q3 will conduct harder, causing an increased voltage drop across R2 and R3. This lowers the forward bias voltage and the current flow through Q2. As a result, the current flow through Q1 is reduced, returning the output voltage to its nominal value. Resistor R4 connects the base of Q3 to the input side of the regulator so that voltage fluctuations at this point can be sensed and compensated for by the gain of the differential amplifier. A differential amplifier is used in the comparison circuit so that variations in base-emitter voltage due to temperature changes in one transistor will tend to cancel similar changes in the other. This configuration also permits the reference diode, CR2, to be placed in the base circuit rather than the emitter, as is the case with a one-stage error amplifier. Less current flows through the diode, resulting in a more stable reference voltage.

2.14.2 Type 76162 +18V Power Supply Regulator. - Figure 6-6 is the schematic diagram for this board; A5 is its reference designation prefix. The operation of this regulator is similar to the -18V board. Polarities of the diodes, transistors,

and capacitors has been reversed to supply the positive voltage. Transistor Q2 functions as an emitter follower in this case to amplify the low current output of Q3. This configuration is used to supply sufficient current drive for the low input impedance at the base of Q1.

SECTION III

INSTALLATION AND OPERATION

3.1 INSTALLATION

The types DMS-107 and DMS-107-1 Demodulators are designed for mounting in a standard 19-inch rack. The units require 3.5 inches of vertical space and will extend approximately 18.0 inches back into the rack. Critical dimensions of a typical unit are shown in Figure 3-1.

3.1.1 Power Connection. - Before the power plug is connected to a 115/230 Vac, 50-400 Hz source, ensure that the power selector switch, S5, on the rear-apron is in the proper position and that the power switch on the front panel is in the OFF position. The third pin of the power plug grounds the unit. If a three pin receptacle is not available, use the three-to-two pin adapter provided.

3.1.2 RF Input Connection. - Connect the source of 0.1 to 10-MHz RF signals to RF INPUT jack, J1, on the rear apron.

3.1.3 External Local Oscillator Connection. - An external local oscillator signal can be connected to jack J4 marked EXT LO INPUT on the rear apron.

3.1.4 DAFC Connection. - Digital automatic frequency control voltage from an associated counter can be connected to rear apron DAFC jack, J5.

3.1.5 Signal Monitor Output. - 21.4-MHz IF signals suitable for connection to a signal monitor are available at jack J2 on the rear apron.

3.1.6 Local Oscillator Output. - The 21.5 to 31.4-MHz oscillator signals from either the internal or external sources is available at LO OUTPUT connector J3 on the rear apron.

3.1.7 Analog Tuning Voltage Output. - A precision potentiometer mounted on the local oscillator tuning assembly provides an analog tuning voltage which is fed to ANALOG OUTPUT jack, J7.

3.1.8 Predetection IF Output Signals. - Amplified predetection IF signals from the selected IF amplifier are available at IF OUTPUT connector J6.

3.1.9 Video Output. - Rear apron connector J8 provides a maximum video output of 2 volts, peak-to-peak across a 91-ohm load.

3.1.10 FM Video Output Signals. - FM video signals from the FM detector in the selected IF amplifier are available at jack J9 on the rear apron.

3.1.11 Audio Output. - Audio output signals are supplied to the front-panel phones jack, J10, and to terminal board TB1 on the rear apron. The latter output is a 600-ohm signal which appears across pins 2 and 3 of the terminal board.

3.2 OPERATION

The controls and indicators found on the front panel of a typical DMS-107 Demodulator are described in the following paragraphs. These controls and indicators are shown in Figure 1-1.

3.2.1 Power Switch. - The demodulators are energized when this switch is placed in the ON position.

3.2.2 LO Select Switch. - When this switch is placed in the INT position, local oscillator signals are supplied by the internal circuit. External LO signals are employed in the conversion process when the EXT position is selected.

3.2.3 Bandwidth Switch. - The BANDWIDTH SELECT switch sets the IF bandwidth of a DMS-107 at 20 kHz, 50 kHz, 100 kHz, 300 kHz, 500 kHz, 1 MHz, 2 MHz, or 3 MHz. This same switch on the DMS-107-1 also selects one of the above bandwidths except that a 5.5-MHz IF strip is employed instead of a 2-MHz wide amplifier.

3.2.4 Mode Select Switch. - Set the MODE switch to the AM-AGC, FM-AGC, AM-MAN, FM-MAN, or CW positions before the demodulator is tuned. When the AM-MAN, FM-MAN, or CW modes are selected, the gain of the unit is controlled by the LEVEL ADJUST control. In addition, when the CW mode is selected, either the 20 kHz, 50 kHz, or 100 kHz bandwidth IF amplifiers must be used.

3.2.5 Level Adjust Control. - The overall gain of the demodulators is set by the LEVEL ADJUST potentiometer when the AM-MAN, FM-MAN, or CW modes are selected. The gain of the units is controlled by internal circuitry when any other mode is selected.

3.2.6 Video Gain Control. - The amplitude of the video signal present at jack J8 is adjusted by the VIDEO GAIN control.

3.2.7 Audio Gain Control. - The gain of audio output signals present at the front panel PHONES jack and at pins 2 and 3 of terminal board TB1 is adjusted by the AUDIO GAIN potentiometer.

3.2.8 Fine Tuning Control. - Vernier tuning of the demodulator is accomplished with the FINE TUNING control on the front panel. This control has a range of 15 kHz, minimum, at 1 MHz and 40 kHz, minimum, at 10 MHz.

3.2.9 Signal Level Meter. - The relative amplitude of incoming signals is presented by the SIGNAL LEVEL meter. This meter is calibrated from 0 to 10. The optimum level at which an incoming signal amplitude should be set is indicated by the SET mark on the meter face.

3.2.10 Tuning Meter. - The TUNING meter will indicate zero when an FM signal is properly centered in the bandpass of the selected IF amplifier.

3.2.11 Main Tuning Knob and Tape Dial. - Tuning of the demodulators over the frequency range of 100 kHz to 10 MHz is by means of the main tuning knob and tape dial. The frequency range sign and the tape dial lights will be illuminated when power is applied to the unit.

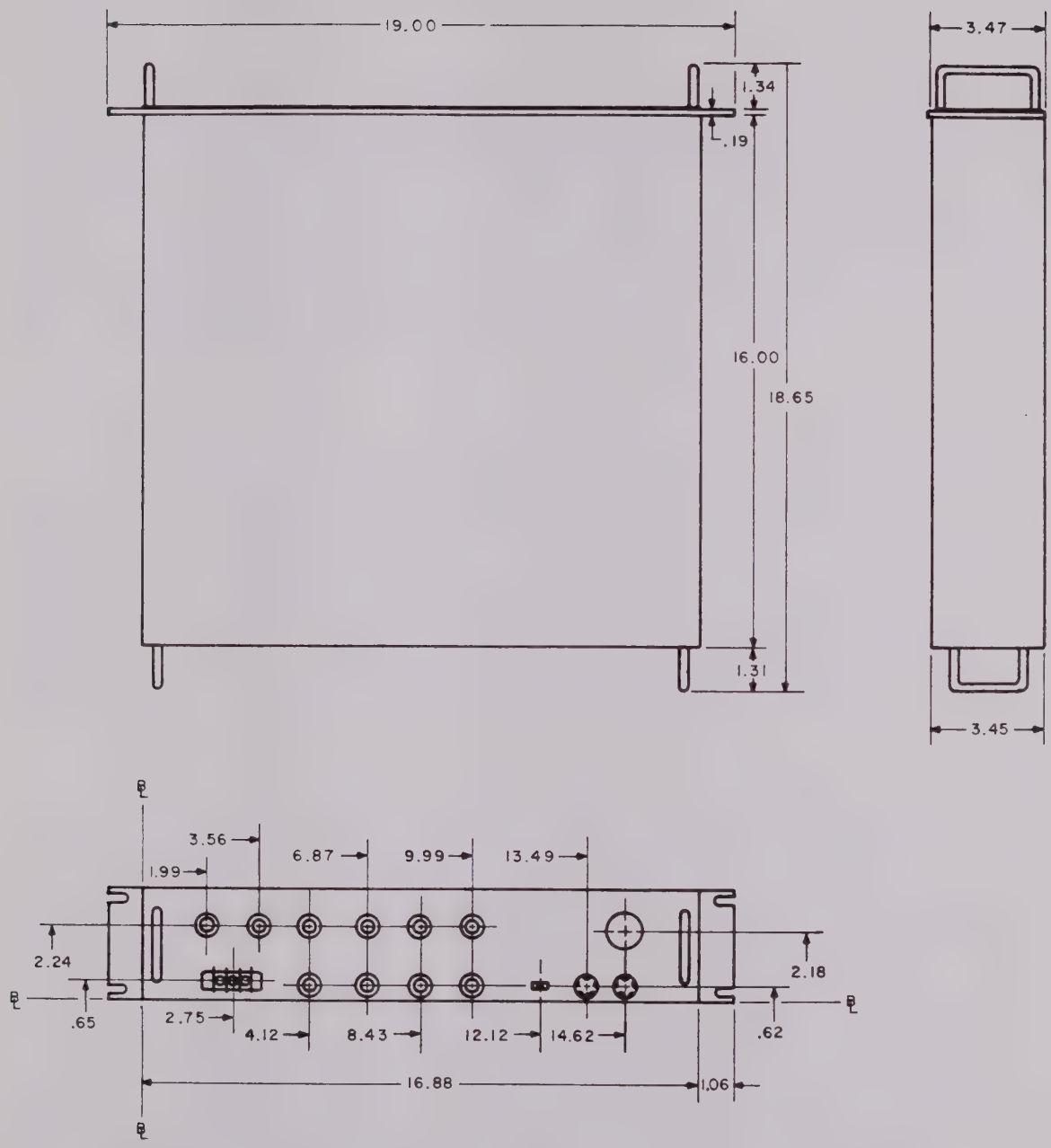


Figure 3-1. Types DMS-107 and DMS-107-1 Demodulators, Critical Dimensions

SECTION IV

MAINTENANCE

4.1 GENERAL

The DMS-107 and DMS-107-1 Demodulators are designed to operate for extended periods of time with little more than routine maintenance. No special procedures are required beyond keeping the unit clean. Down time will be minimized if the maintenance technician is familiar with Section II in which the circuits are described and with the schematic diagrams at the rear of the manual. Field maintenance should consist of the replacement of fuses and plug-in modules. All other maintenance should be carried out in a well equipped shop and performed by trained and experienced personnel.

4.2 PLUG-IN MODULES

The plug-in modules can be easily removed by simply loosening the hold-down clamp and pulling them upward. The numbers stenciled on the main chassis adjacent to the receptacle pins correspond to the numbers indicated on the schematic diagrams at the points where the connecting leads pass through the lines outlining each module. Modules having different bandwidths and/or functions are keyed to prevent them from being damaged as a result of being placed in the wrong receptacle. All plug-in modules have their type numbers etched on the back. Reference to this number and to the main chassis schematic diagrams will locate their reference designation prefixes and thus their proper location in the unit.

4.3 TROUBLESHOOTING

Initial troubleshooting of the demodulators should be directed toward localizing the problem to a specific subassembly. In the case of the plug-in modules, substitution of a spare known to be good will usually cure the trouble. If spare modules are not available, then the signal tracing method should be used. Feed an RF signal within the 0.1 to 10-MHz range at a level between 30 mV and 1 V peak-to-peak into the RF INPUT connector, J1. Tune the demodulator to the signal and, using a wideband oscilloscope, check for an output at A1J4, and A3A1J1. In addition, while selecting each IF amplifier, check for an output at connector J6 on the rear apron. If an output is present at these points, then the input mixer, variable oscillator, the eight IF strips and IF output amplifier can be eliminated from consideration. This leaves the audio and video amplifiers which can be checked by conventional methods. Once the defective module or subassembly is located than voltage and resistance measurements will usually pinpoint the faulty part. Typical transistor and IC pin voltages are listed in Table 4-1.

4.4 MAINTENANCE OF GEAR TRAIN ASSEMBLY

Figure 5-3 is an exploded view of the gear train used in the DMS-107 and DMS-107-1 Demodulators. The assembly relies on stops and a slip clutch on the gear train to halt tuning at the high and low ends of the tuning range. The occasional application of a few drops of light oil to the shaft bearings is all that is required to insure proper operation.

4.4.1 Dial Lamp Replacement. - To replace a burned out dial lamp proceed as follows:

(1) Remove the black screws that secure the dial escutcheon to the front panel; remove the escutcheon.

(2) Remove the light bar (item number 3 on Figure 5-3), by first removing the retaining screws.

(3) Carefully pull the light bar and light board away from the gear train.

(4) Rotate the light board up and detach it from the light bar by removing the screws.

(5) Unsolder the burned out lamp and replace with a new unit. Use a low-heat iron to prevent damage to the printed circuit pattern.

(6) Replace the light board and light bar by reversing steps (1) through (4) above.

4.4.2 Alignment of Dial Tape. - The calibrated steel tape used as the tuning dial is geared to the tuning assembly in such a manner that it is highly unlikely that it will ever get out of position. However, to check the alignment or to mechanically reposition the dial tape proceed as follows:

(1) Rotate the tuning knob counterclockwise until tape movement stops. The mark to the right of the arrow should be aligned with the dial pointer. If it is not, proceed to step (2).

(2) Remove the top dust cover from the unit and loosen the setscrew on the tape drive (item 15 on Figure 5-3).

(3) By hand, move the dial tape, independent of the gear train to align the mark with the pointer. Tighten the setscrew. After any mechanical re-alignment of the tape, perform the dial calibration procedures described in paragraph 4.5.5.

4.5 ALIGNMENT PROCEDURES

4.5.1 General. - The alignment procedures described in the following paragraphs are suitable when making periodic performance checks, or when making adjustments after replacing integrated circuits, transistors, or other critical components. Only those controls specifically referred to within a series of steps given for aligning a particular circuit, affect the alignment of that circuit. Those controls not mentioned in any one series of steps may be left in any position. The alignment of the demodulators should be performed only with well maintained test equipment and only by technicians thoroughly familiar with the units. If the results specified in the following procedures cannot be obtained then a factory alignment is necessary.

4.5.2 Test Equipment Required. - The following equipments or their equivalent are required to perform the complete alignment of a DMS-107 or DMS-107-1:

(1) Sweep Generator, Telonic SM-2000 with internal 21.4 MHz marker.

(2) Sweep Generator, Plug-In Head, Telonic 3006.

(3) Signal Generator, Hewlett-Packard 608C.

(4) Frequency Counter, Hewlett-Packard Type 5245L.

(5) Oscilloscope, Tektronix 503.

(6) VTVM, RCA WV-98C.

(7) Assorted cables, connectors and alignment tools.

4.5.3 Power Supply Adjustments. - Prior to performing any adjustments within the demodulators, make the following checks:

(1) Connect the VTVM between pin 14 of XA4 and ground.

(2) Adjust the meter to read negative dc volts, and use 50-volt scale.

(3) With all subassemblies in place, energize the unit and, if necessary, adjust A4R6 on the board for a -18 volt reading on the VTVM.

(4) Turn off the power to the demodulator, and disconnect the VTVM from XA4, reconnect it to XA5, pin 12 and adjust controls for positive dc volts.

(5) Energize the unit and, if necessary, adjust A5R7 on this board for a +18 volt reading on the VTVM. Again turn off the power and remove the connections.

4.5.4 Fine Tuning Voltage Adjustment. - Before the dial calibration can be performed the fine tuning voltage must be properly set. Proceed as follows:

(1) Connect the VTVM leads between feed through capacitor A3A1C5 on the tuning assembly and ground; adjust the meter to read dc volts.

(2) Place demodulator LO SELECT switch in INT position.

(3) Energize the unit and adjust the FINE TUNING control for a 7.45-volt reading on the VTVM.

4.5.5 Dial Calibration. - Proceed as follows:

(1) Perform the fine tuning voltage adjustment described in paragraph 4.5.4.

(2) Connect the LO OUTPUT jack, J3, on the rear apron to the input of the frequency counter.

(3) Tune the demodulator to 0.1 MHz. The counter should read 21.5 MHz, ±0.40 MHz. If not, adjust capacitor A3A1C2 until this reading is obtained.

(4) Tune the demodulator to 10.0 MHz. The counter should read 31.4 MHz, ±0.6 MHz. If not, obtain the difference between the actual counter reading and 31.4 MHz. Divide this difference by two and adjust inductor A3A1L1 so that the counter reading moves toward 31.4 MHz by that amount.

(5) Tune the demodulator to 0.1 MHz and if necessary, readjust A3A1C2 for a 21.5 MHz, ±0.40 MHz reading.

(6) Repeat steps (4) and (5) until the dial indications and the counter readings are within the tolerance specified.

(7) Check the dial readings versus local oscillator frequency at 1-MHz intervals from 0.1 MHz to 10 MHz. If the readings and/or dial indications are not within 2%, repeat the entire calibration procedure.

4.5.6 Alignment of Narrow Bandwidth IF Amplifiers. - The alignment procedures for the 20-kHz, 50-kHz, and 100-kHz bandwidth IF amplifiers are identical; therefore only the 20-kHz bandwidth is presented in detail.

4.5.6.1 AM Alignment. - Proceed as follows:

(1) Connect equipment as shown in Figure 4-1.

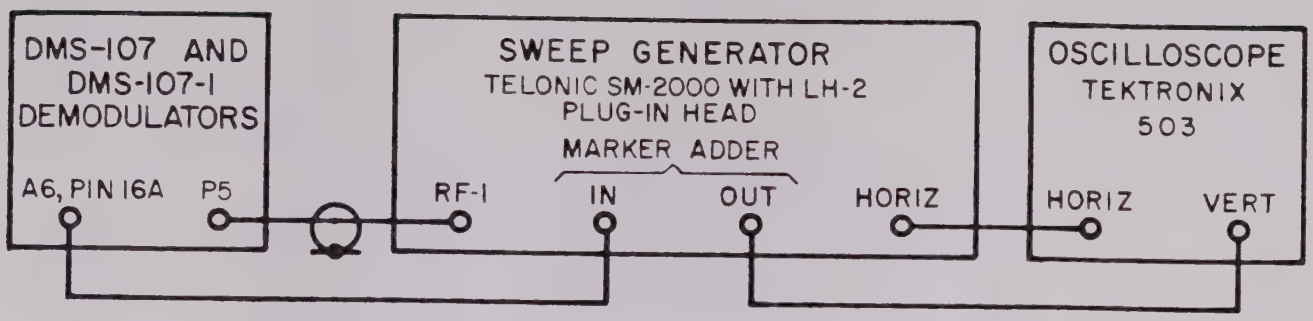


Figure 4-1. Equipment Setup, IF Amplifier Alignment.

(2) Place demodulator LO SELECT switch in INT position, BANDWIDTH SELECT in 20 kHz position MODE switch in AM-MAN, and rotate LEVEL ADJUST control fully clockwise.

(3) Set sweep generator output frequency to 21.4 MHz.

(4) Adjust sweep generator and oscilloscope controls to display a response curve.

(5) Adjust inductors (A6)L5, (A6)L3, and (A6)L2 for a maximum amplitude, symmetrical response having a 20, 50, or 100-kHz bandwidth at the 3-dB points. Readjust (A6)L5 for minimum ripple. A typical narrowband AM response is shown in Figure 4-2.

4.5.6.2 FM Alignment. - Proceed as follows:

(1) Connect equipment as shown in Figure 4-1 except that the sweep generator MARKER ADDER INPUT is connected to FM DET jack, J9, on the rear apron.

(2) Set demodulator controls as described in paragraph 4.5.6.1 step (2) except that the MODE switch should be placed in FM-MAN.

(3) Adjust sweep generator and oscilloscope controls to display an "S" response curve.

(4) Adjust inductor (A6)L7 for amplitude symmetry and zero crossing of the "S" curve. A typical narrowband FM response is shown in Figure 4-3.

4.5.7 Alignment of Medium Bandwidth IF Amplifiers. - The alignment procedures for the three medium bandwidth IF amplifiers, the 300-kHz, 500-kHz, and 1-MHz units are identical therefore only the 300-kHz alignment will be presented in detail.

4.5.7.1 AM Alignment. - Proceed as follows:

(1) Connect equipment as shown in Figure 4-1.

(2) Set demodulator controls as described in paragraph 4.5.6.1 except that the BANDWIDTH SELECT switch should be placed in the 300 kHz position.

(3) Set output of sweep generator to 21.4 MHz and turn internal 21.4-MHz marker on.

(4) Adjust sweep generator and oscilloscope controls to display a response curve.

(5) Adjust inductors (A9)L2, (A9)L9, (A9)L8, (A9)L6, (A9)L5, (A9)L3, and (A9)L2, in the order given, for a maximum amplitude, symmetrical response centered about the 21.4-MHz marker. A typical AM response is shown in Figure 4-4. Check for 300-kHz, 500-kHz, or 1-MHz bandwidth at the 3-dB points.

4.5.7.2 FM Alignment. - Proceed as follows:

(1) Connect equipment as shown in Figure 4-1 except that the sweep generator MARKER ADDER INPUT is connected to FM DET jack, J9, on the rear apron.

(2) Set demodulator controls as described in paragraph 4.5.6.1 step (2) except that the MODE switch should be placed in the FM-MAN position and the BANDWIDTH SELECT switch placed in the 300 kHz position.

(3) Adjust sweep generator and oscilloscope controls to display an "S" response curve. Turn sweep generator internal 21.4-MHz marker on.

(4) Adjust inductor (A9)L15 for amplitude symmetry and transformer (A9)T1 for zero crossing of the "S" curve about the 21.4-MHz marker. Atypical medium bandwidth FM response is shown in Figure 4-5.

4.5.8 Alignment of Wide Bandwidth IF Amplifiers. - The alignment procedures for the 2-MHz, 3-MHz, and 5.5-MHz bandwidth IF amplifiers is identical, therefore only the alignment of the 2-MHz unit will be presented in detail.

4.5.8.1 AM Alignment. - Proceed as follows:

(1) Connect equipment as shown in Figure 4-1; turn sweep generator internal 21.4-MHz marker on.

(2) Set demodulator controls as described in paragraph 4.5.6.1 except that the BANDWIDTH SELECT switch should be placed in the 2 MHz position.

(3) Adjust sweep generator and oscilloscope controls to display a response curve.

(4) Adjust inductors (A12)L11, (A12)L8, (A12)L7, (A12)L6, (A12)L4, (A12)L3, and (A12)L2 for a maximum amplitude symmetrical response centered about the 21.4-MHz marker. A typical wideband AM response is shown in Figure 4-6.

4.5.8.2 FM Alignment. - Proceed as follows:

(1) Connect equipment as shown in Figure 4-1 except that the sweep generator MARKER ADDER INPUT is connected to the FM DET jack, J9, on the rear apron.

(2) Set demodulator controls as described in paragraph 4.5.6.1, step (2), except that the BANDWIDTH SELECT switch should be placed in the 2 MHz position, and the MODE switch should be placed in the FM-MAN position.

(3) Adjust sweep generator and oscilloscope controls to display an "S" response curve; turn sweep generator internal 21.4-MHz marker on.

(4) Adjust inductor (A12)L16 for amplitude symmetry and transformer (A12)T1 for zero crossing of the "S" curve, centered about the 21.4-MHz marker. A typical wideband FM response is shown in Figure 4-7.

4.5.9 Input Mixer Adjustment. - The manual and AGC gain controls located in the input mixer assembly, A1, are factory adjusted once all IF amplifiers are properly aligned. These settings should not be changed unless it is determined that the output level from one or more IF amplifiers is below the SET position as indicated on the front-panel SIGNAL LEVEL meter. Perform the gain adjustments for the IF amplifiers as described in paragraph 4.5.10 before changing the input mixer gain controls. The local oscillator must also be functioning properly before the following adjustments are made.

(1) Connect the output of the HP608C signal generator to RF INPUT jack, J1.

(2) Set signal generator output frequency to 5.0 MHz; adjust output level to approximately -16.5 dBm (30 mV), CW mode.

(3) Tune demodulator to 5.0 MHz; place LO SELECT control in INT position, MODE switch in AM-MAN, LEVEL

ADJUST fully clockwise, and BANDWIDTH SELECT switch in position to activate an IF strip that is known to be properly aligned and adjusted.

(4) Note the reading on the SIGNAL LEVEL meter; if it is not at the "SET" position, adjust potentiometer A1R52 on the input mixer board to obtain this reading.

(5) Place the demodulator MODE switch in the AM-AGC position.

(6) Note the SIGNAL LEVEL meter reading; it should again be at the "SET" position. If not, adjust potentiometer A1R43 to obtain this reading.

4.5.10 IF Gain Adjustment. - The gain of all the IF amplifiers has been factory adjusted to provide an equal input level to the video and audio amplifiers. These gain adjustments should not be changed unless an integrated circuit or transistor has been replaced in a particular IF strip. Proceed as follows:

(1) Connect the output of the HP608C signal generator to RF INPUT jack, J1, on the demodulator rear apron.

(2) Set output frequency of signal generator to 5.0 MHz, output level to 30 mV, p-p, CW mode.

(3) Tune the demodulator to 5.0 MHz; place LO SELECT switch in INT position, MODE switch in AM-MAN, and rotate LEVEL ADJUST control fully clockwise. Select an IF bandwidth that is known to be operational and properly adjusted.

(4) The SIGNAL LEVEL meter should indicate a "SET" level. If it does not, select an operational IF strip that will provide this reading. If none of the IF amplifiers will provide a "SET" reading perform the Input Mixer adjustments described in paragraph 4.5.9 and return to step (5).

(5) Place the BANDWIDTH SELECT switch in the position for the IF strip that was repaired and note the SIGNAL LEVEL reading. If it is not at the "SET" position adjust the particular gain control potentiometer on the IF strip to obtain this reading. For example, on the 20-kHz bandwidth strip, adjust A6R7. On the 2-MHz bandwidth IF amplifier, adjust A12R1.

Table 4-1. Types DMS-107 and DMS-107-1 Demodulators, Typical Transistor Element Voltages

Reference Designation	Type	Integrated Circuit Pin Numbers									
		1	2	3	4	5	6	7	8	9	10
		Field Effect Transistor Pins							Transistor Elements		
		Drain	Gate 2	Gate 1	Source				Emitter	Base	Collector
A1U1	μA741C		1.12	1.53	-17.9		16.6	17.2			
A1Q1	2N5109								7.44	8.18	17.1
A1Q2	2N5109								-13.7	-13.0	-1.74
A1Q3*	2N5109								3.81	4.58	14.0
A1Q4	2N5109								-0.74	0.0	13.1
A1Q5	2N5109								4.10	4.82	17.6
A1Q6	3N140	17.1	3.20	0.94	1.49						
A2Q1	2N5109								-13.6	-12.9	4.0
A2Q2	3N5109								4.55	5.28	17.1
A3A1A1Q1	2N3933								-1.84	-1.11	17.9
A4Q1	2N3055								-25.6	-25.0	-18.0
A4Q2	2N4037								-18.0	-18.6	-25.0
A4Q3	2N4037								-6.63	-7.19	-18.6
A4Q4	2N4037								-6.63	-7.23	-17.4
A5Q1	2N3055								18.0	18.5	24.1
A5Q2	2N4074								18.5	19.10	24.1
A5Q3	2N4074								6.90	7.45	19.10
A5Q4	2N4074								6.90	7.51	17.4

Table 4-1. Types DMS-107 and DMS-107-1 Demodulators, Typical Transistor Element Voltages (Continued)

Reference Designation	Type	Integrated Circuit Pin Numbers									
		1	2	3	4	5	6	7	8	9	10
		Field Effect Transistor Pins							Transistor Elements		
		Drain	Gate 2	Gate 1	Source				Emitter	Base	Collector
A6-A8U1	MC-1550G	0.94	0.18	0.18	0.94		15.1		8.17	15.2	8.14
A6-A8U2	MC-1550G	0.15	0.44	0.44	1.22		15.8		8.64	15.9	8.62
A6-A8U3	MC-1550G	0.76			0.76		16.9		8.64	17.1	8.61
A6-A8U4	F-771	2.04					15.5				11.3
A6-A8Q1**	2N3933								0.0	-0.98	6.65
A6-A8Q2	2N4074								-0.18	0.43	17.3
A6-A8Q3#	2N3251								0.64	0.0	-17.8
A6-A8Q4#	2N4070								0.05	0.64	17.8
A9-A11U1	MC-1550G	0.82	0.04	0.04	0.82		13.3		7.18	13.3	7.15
A9-A11U2	MC-1550G	0.87	0.09	0.09	0.87		13.6		7.37	13.7	7.35
A9-A11U3	MC-1550G	0.77			0.76		15.7		8.33	15.8	8.29
A9-A11U4	MC-1550G	0.76			0.76		16.9		9.01	17.0	8.97
A9-A11U5	F-719		-0.08				17.5				13.5
A9-A11Q1									-0.13	0.46	17.4
A9-A11Q2#									0.78	0.64	-17.3
A9-A11Q3#									0.08	0.68	0.63
A12, A13U1	MC-1550G	1.14	0.35	0.35	1.14		14.3		7.77	14.4	7.74
A12, A13U2	MC-1550G	0.85			0.77		14.6		7.82	14.8	7.78
A12, A13U3	MC-1550G	0.78			0.78		14.9		7.85	15.1	7.80
A12, A13U4	F-771	2.22	2.22				17.5				12.5
A12, A13Q1	2N4074								-0.05	4.64	17.3
A12, A13Q2	2N3251								0.65	1.55	-18.0
A12, A13Q3	2N4074								0.03	0.65	17.7

Table 4-1. Types DMS-107 and DMS-107-1 Demodulators, Typical Transistor Element Voltages (Continued)

		Integrated Circuit Pin Numbers									
		1	2	3	4	5	6	7	8	9	10
		Field Effect Transistor Pins							Transistor Elements		
Reference Designation	Type	Drain	Gate 2	Gate 1	Source				Emitter	Base	Collector
A14Q1	2N3904								1.43	2.06	17.0
A14Q2	2N3906								17.8	17.0	9.0
A14Q3	2N3904								8.2	9.0	18.0
A14Q4	2N3906								7.93	7.25	0.0
A15Q1	2N4074								0.83	1.40	17.3
A15Q2	2N3251								18.0	17.2	10.5
A15Q3	2N2270								9.95	10.5	18.0
A15Q4	2N4037								0.0	8.77	9.41

TEST CONDITIONS: All readings are positive dc with respect to chassis, unless otherwise noted. Readings taken with WV-98B VTVM. Control Settings: LO SELECT to INT; MODE to AM MAN; IF BANDWIDTH to position of unit under test; FINE TUNING midrange; and LEVEL ADJUST fully clockwise.

NOTE: *LO SELECT in EXT position.
**MODE SELECT in CW position.
#MODE SELECT in FM position.

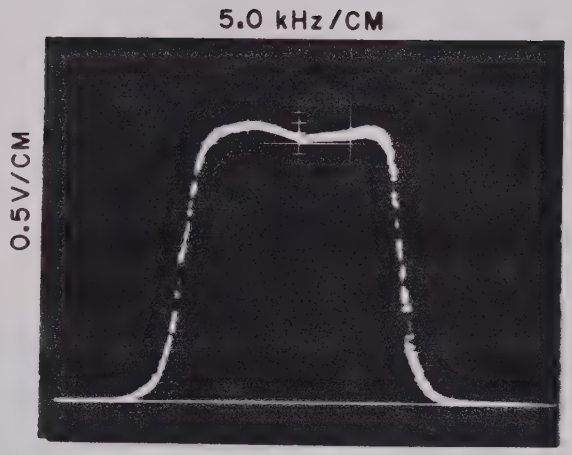


FIG. 4-2. Typical Response, Narrow Bandwidth IF Amplifiers, AM Alignment.

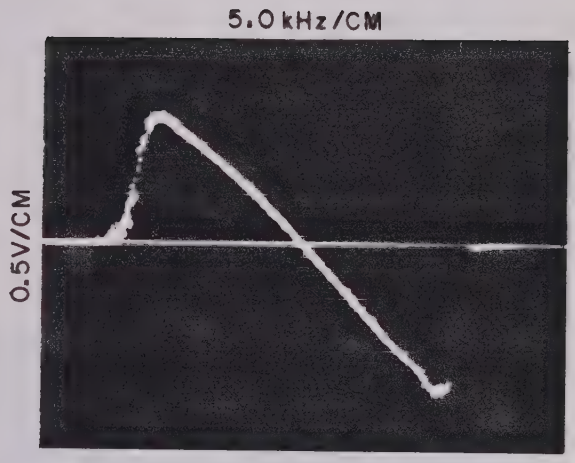


FIG. 4-3. Typical Response, Narrow Bandwidth IF Amplifiers, FM Alignment.

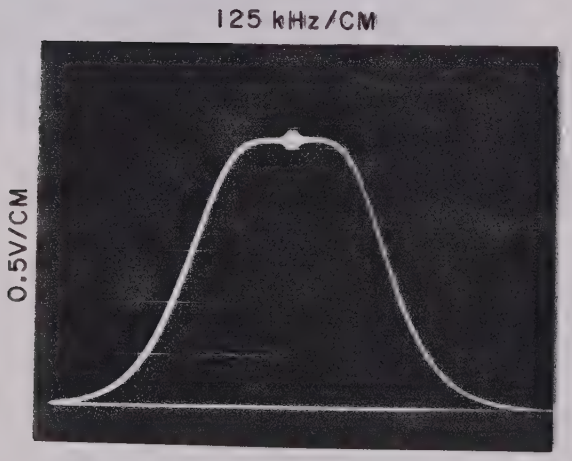


FIG. 4-4. Typical Response, Medium Bandwidth IF Amplifiers, AM Alignment.

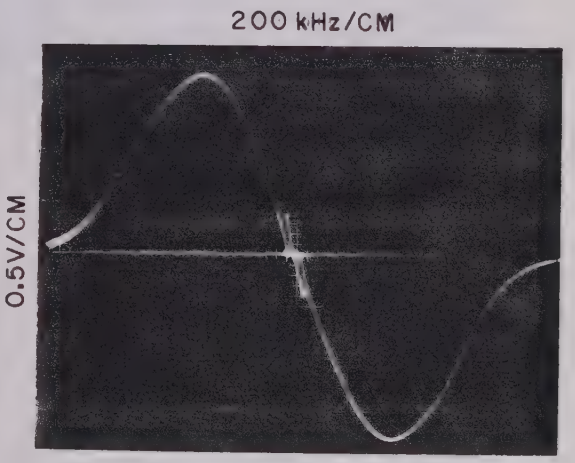


FIG. 4-5. Typical Response, Medium Bandwidth IF Amplifiers, FM Alignment.

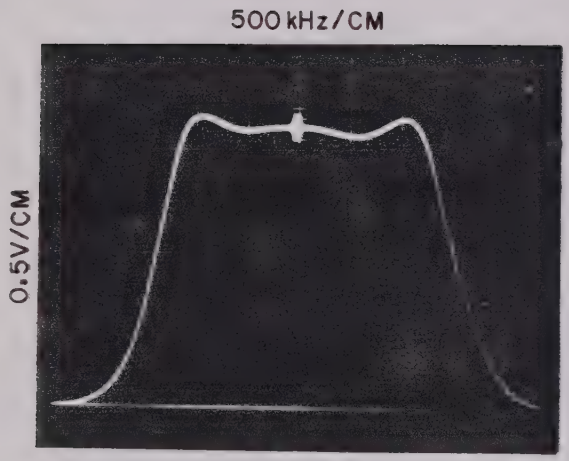


FIG. 4-6. Typical Response, Wide Bandwidth IF Amplifiers, AM Alignment.

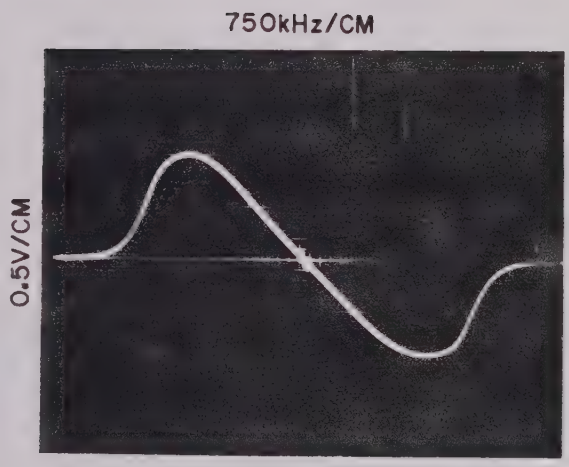


FIG. 4-7. Typical Response, Wide Bandwidth IF Amplifiers, FM Alignment.

SECTION V

REPLACEMENT PARTS LIST

5.1 UNIT NUMBERING METHOD

The unit numbering method of assigning reference designations (electrical symbol numbers) has been used to identify assemblies, subassemblies (and modules), and parts. An example of the unit method follows:

Subassembly Designation	Class and No. of item
Identify from right to left as:	First (1) resistor (R) of first (1) subassembly (A)

As shown on the main chassis schematic, components which are an integral part of the main chassis have no subassembly designation.

5.2 REFERENCE DESIGNATION PREFIX

Partial reference designations have been used on the equipment and on the illustrations in this manual. The partial reference designations consist of the class letter(s) and identifying item number. The complete reference designations may be obtained by placing the proper prefix before the partial reference designations. Reference Designation Prefixes are provided on drawings and illustrations in parenthesis within the figure titles.

5.3 LIST OF MANUFACTURERS

Mfr. Code	Name and Address	Mfr. Code	Name and Address
00328	Sterling Instrument Division of Designatronics, Inc. 55 South Denton Avenue New Hyde Park, N.Y. 11040	02735	RCA Corporation Solid State Division Route 202 Somerville, New Nersey 08876
01121	Allen-Bradley Company 1201 South 2nd Street Milwaukee, Wisconsin 53212	03040	Bulova Watch Company, Inc. American Time Products Dept. Electronics Division 61-20 Woodside Avenue Woodside, New York 11377
01351	Dynamic Gear Co., Inc. 175 Dixon Avenue Amityville, New York 11701	04013	Taurus Corporation 1 Academy Hill Lambertville, New Jersey 08530

Mfr. Code	Name and Address
04713	Motorola Semiconductor Products, Inc. 5005 East McDowell Road Phoenix, Arizona 85008
04941	Walsco Electronics Corporation 4 South Wyman Rockford, Illinois 61101
07263	Fairchild Camera and Instrument Corporation Semiconductor Division 464 Ellis Street Mountain View, Calif. 94040
07387	The Birtcher Corporation 4371 Valley Boulevard Los Angeles, California 90032
14632	WATKINS—JOHNSON COMPANY 700 Quince Orchard Road Gaithersburg, Maryland 20878
21604	The Buckeye Stamping Company 555 Marion Road Columbus, Ohio 43207
23783	British Radio Electronics, Ltd. 1742 Wisconsin Avenue, N.W. Washington, D.C. 20007
25088	Siemens America, Inc. 350 5th Avenue New York, New York 10001
27193	Cutler-Hammer, Incorporated Special Products Division 402 North 27th Street Milwaukee, Wisconsin 53216
27956	Relcom 3333 Hillview Avenue Palo Alto, California 94304
28480	Hewlett Packard Company 1501 Page Mill Road Palo Alto, California 94304
56289	Sprague Electric Company Marshall Street North Adams, Mass. 01247
70417	Chrysler Corporation Amplex Division 6501 Harper Avenue Detroit, Michigan 48211
71279	Cambridge Thermionic Corporation 445 Concord Avenue Cambridge, Mass. 02138
71400	Bussman Manufacturing Division of McGraw-Edison Co. 2536 W. University Street St. Louis, Missouri 63107
71590	Centralab Electronics Division of Globe-Union Inc. 5757 North Green Bay Avenue Milwaukee, Wisconsin 53201
71744	Chicago Miniature Lamp Works 4433 Ravenswood Avenue Chicago, Illinois 60640
71785	Cinch Manufacturing Company Howard B. Jones Division 1026 South Homan Avenue Chicago, Illinois 60624

Mfr. Code	Name and Address
72136	Electro Motive Manufacturing Company, Inc. South Park & John Streets Willimantic, Connecticut 06226
72982	Erie Technological Products, Incorporated 644 West 12th Street Erie, Pennsylvania 16512
73138	Beckman Instruments, Inc. Helipot Division 2500 Harbor Boulevard Fullerton, California 92634
73899	JFD Electronics Company Division of Stratford Retreat House 15th at 62nd Street Brooklyn, New York 11219
74306	Piezo Crystal Company 100 K Street Carlisle, Pennsylvania 17013
74868	Bunker Ramo Corporation The Amphenol RF Division 33 East Franklin Street Danbury, Conn. 06810
75042	IRC Division of TRW Inc. 401 North Broad Street Philadelphia, Penn. 19108
75915	Littelfuse, Incorporated 800 E. Northwest Highway Des Plaines, Illinois 60016
79136	Waldes Kohinoor Inc. 47-16 Austel Place Long Island City, N.Y. 11101
80058	Joint Electronic Type Designation System
80131	Electronic Industries Association 2001 Eye Street, N.W. Washington, D.C. 20006
81312	Winchester Electronics Division Litton Industries, Incorporated Main Street & Hillside Avenue Oakville, Connecticut 06679
81349	Military Specifications
82389	Switchcraft, Inc. 5555 North Elston Avenue Chicago, Illinois 60630
83086	New Hampshire Ball Bearings, Inc. Peterborough, New Hampshire 03458
88044	Aeronautical Standards Group Department of the Navy and Air Force Silver Spring, Maryland
91293	Johanson Manufacturing Company P.O. Box 329 Boonton, New Jersey 07005
91418	Radio Materials Company 4242 West Bryn Mawr Avenue Chicago, Illinois 60646

Mfr. Code	Name and Address	Mfr. Code	Name and Address
93332	Sylvania Electric Products, Inc. Semiconductor Products Division 100 Sylvan Road Woburn, Mass. 01801	99800	American Precision Industries Delevan Electronics Division 270 Quaker Road East Aurora, New York 14052
94144	Raytheon Company Components Division Industrial Components Operation 465 Centre Street Quincy, Mass. 02169	99848	Wilco Corporation 4030 West 10th Street P.O. Box 22248 Indianapolis, Indiana 46222
96906	Military Standards		

5.4 PARTS LIST

The parts list which follows contains all electrical parts used in the equipment and certain mechanical parts which are subject to unusual wear or damage. When ordering replacement parts from the Watkins-Johnson Company, specify the type and serial number of the equipment and the reference designation and description of each part ordered. The list of manufacturers provided in paragraph 5.3 and the manufacturer's part number for components are included as a guide to the user of the equipment in the field. These parts may not necessarily agree with the parts installed in the equipment, however, the parts specified in this list will provide satisfactory operation of the equipment. Replacement parts may be obtained from any manufacturer as long as the physical and electrical parameters of the part selected agree with the original indicated part. In the case of components defined by a military or industrial specification, a vendor which can provide the necessary component is suggested as a convenience to the user.

NOTE

As improved semiconductors become available it is the policy of Watkins-Johnson to incorporate them in proprietary products. For this reason some transistors, diodes and integrated circuits installed in the equipment may not agree with those specified in the parts lists and schematic diagrams of this manual. However, the semiconductors designated in the manual may be substituted in every case with satisfactory results.

5.4.1 Type DMS-107 And DMS-107-1 Demodulator, Main Chassis

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
A1	INPUT MIXER ASSEMBLY	1	79586	14632	
A2	IF OUTPUT AMPLIFIER ASSEMBLY	1	72300	14632	
A3	VARIABLE OSCILLATOR ASSEMBLY	1	71272	14632	
A4	-18 V POWER SUPPLY REGULATOR	1	76160	14632	
A5	+18 V POWER SUPPLY REGULATOR	1	76162-1	14632	
A6	21.4 MHz IF AMPLIFIER (20 kHz BW)	1	72277	14632	
A7	21.4 MHz IF AMPLIFIER (50 kHz BW)	1	72278	14632	
A8	21.4 MHz IF AMPLIFIER (100 kHz BW)	1	72279	14632	
A9	21.4 MHz IF AMPLIFIER (300 kHz BW)	1	72280	14632	
A10	21.4 MHz IF AMPLIFIER (500 kHz BW)	1	72281	14632	
A11	21.4 MHz IF AMPLIFIER (1 MHz BW)	1	72282	14632	
A12	21.4 MHz IF AMPLIFIER (2 MHz BW)	1	72283	14632	
A12	21.4 MHz IF AMPLIFIER (3.0 MHz BW) (DMS-107-1)	1	72284	14632	
A13	21.4 MHz IF AMPLIFIER (3.0 MHz BW)	1	72284	14632	
A13	21.4 MHz IF AMPLIFIER (5.5 MHz BW) (DMS-107-1)	1	72312	14632	
A14	VIDEO AMPLIFIER	1	7366	14632	
A14	VIDEO AMPLIFIER (DMS-107-1)	1	7360	14632	
A15	VIDEO AMPLIFIER	1	7440	14632	
A16	BANDPASS FILTER (DMS-107-1)	1	79313-1	14632	
C1	NOT USED				
C2	CAPACITOR, CERAMIC, DISC: 0.1 μF, -20+80%, 25 V	1	DFJ3	73899	

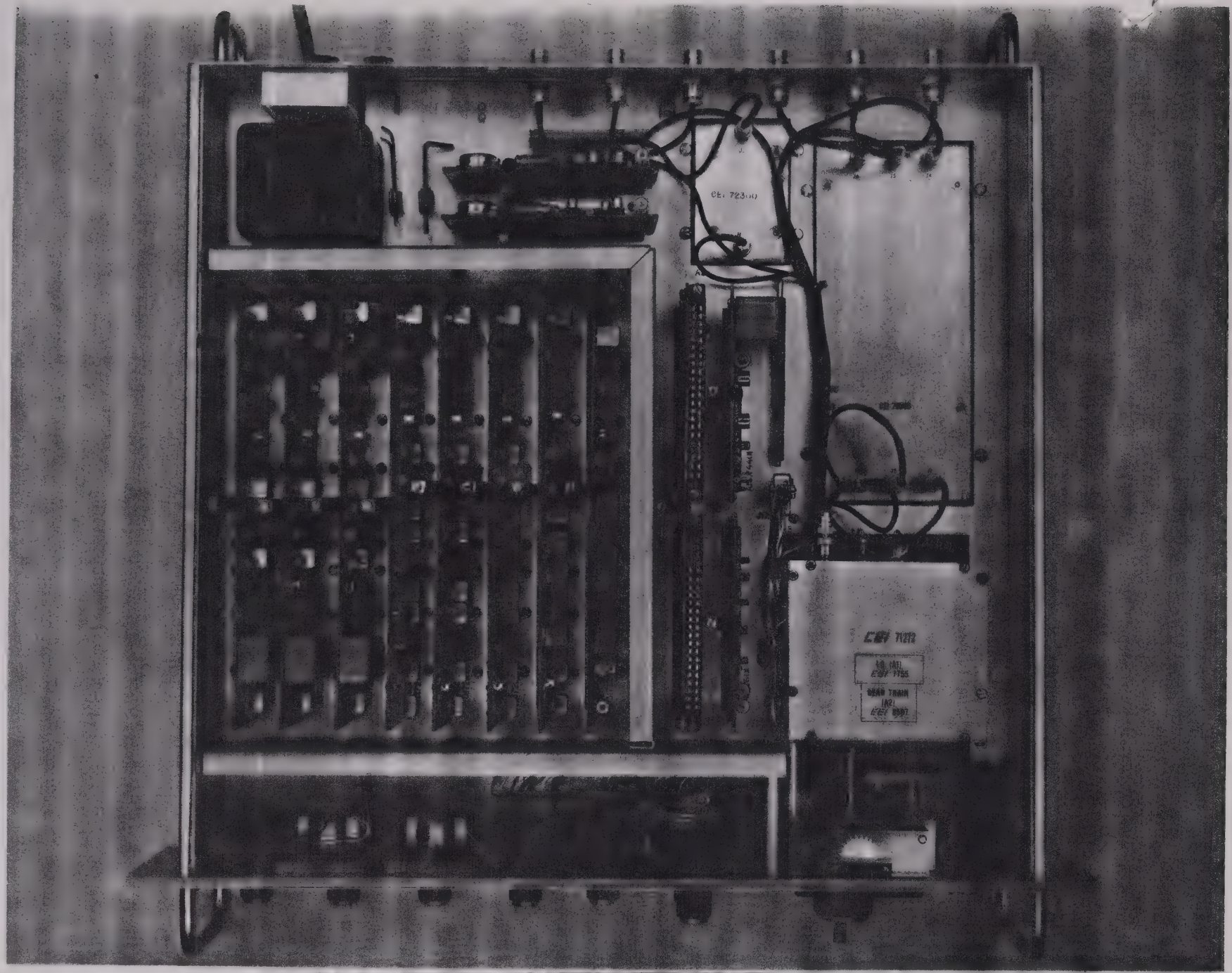


FIG. 5-1. TYPE DMS-107 DEMODULATOR, TOP VIEW.

REF DESIG	DESCRIPTION		QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
C3	CAPACITOR, ELECTROLYTIC, ALUMINUM: 100 μF, -10+75%, 50 V		2	39D107G050EJ4	56289	
C4	Same as C3					
FL1	FILTER, LOW-PASS		1	JN33-694B	56289	
F1	FUSE, 3AG, SLOW-BLOW: 1/8 AMP		1	MDL1/8	71400	
F2	FUSE, 3AG, SLOW-BLOW: 1/16 AMP		1	MDL1/16	71400	
J1	CONNECTOR, RECEPTACLE: BNC SERIES	Part of W1	9	17825-1002	74868	
J2	Same as J1	Part of W4				
J3	Same as J1	Part of W3				
J4	Same as J1					
J5	Same as J1					
J6	Same as J1	Part of W5				
J7	CONNECTOR, RECEPTACLE: BNC SERIES		1	UG1094U	80058	74868
J8	Same as J1					
J9	Same as J1					
J10	CONNECTOR, PHONE JACK		1	L11	82389	
J11	Same as J1					
J12	CONNECTOR, RECEPTACLE, MULTIPIN		1	SLE14SNSS	81312	
M1	METER: TUNING		1	14549-1	14632	
M2	METER: SIGNAL LEVEL		1	15691-1	14632	
MP1	EXTENDER BOARD		1	79677	14632	
MP2	HANDLE		2	415-1252-02-02	71279	

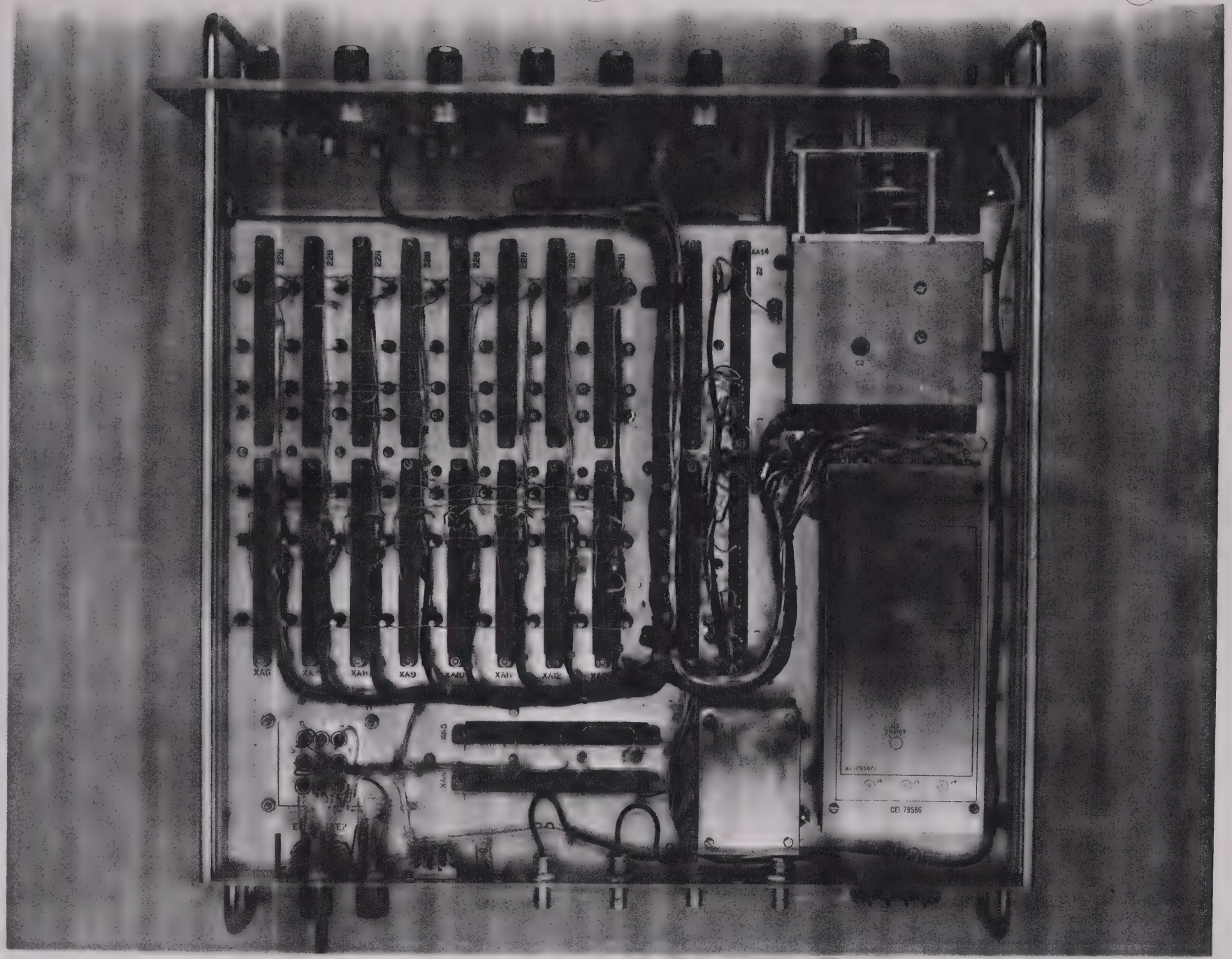


FIG. 5-2. TYPE DMS-107 DEMODULATOR, BOTTOM VIEW.

REF DESIG	DESCRIPTION		QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
MP3	Same as MP2					
MP4	HANDLE		2	415-1250-01-02	71279	
MP5	Same as MP4					
MP6	WINDOW		1	11448-4	14632	
MP7	WINDOW		1	11449-1	14632	
MP8	KNOB		4	PS70D2/LG	21604	
MP9	Same as MP8					
MP10	Same as MP8					
MP11	Same as MP8					
MP12	KNOB		3	PS70PL2/LG	21604	
MP13	Same as MP12					
MP14	Same as MP12					
MP15	KNOB		1	PS125D2/LG	21604	
MP16	KNOB LOCK		1	KL1251G	94144	
P1	CONNECTOR, PLUG: MB SERIES	Part of W1	9	44950	74868	
P2	Same as P1	Part of W2				
P3	Same as P1	Part of W2				
P4	Same as P1					
P5	Same as P1					
P6	Same as P1	Part of W3				
P7	Same as P1	Part of W4				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
P8	Same as P1				
P9	Same as P1 Part of W5				
P10	Same as P1 (DMS-107-1)				
P11	Same as P1 (DMS-107-1)				
R1	RESISTOR, FIXED, COMPOSITION: 6.8 kΩ, 5%, 1/4W	2	RCR07G682JS	81349	01121
R2	RESISTOR, FIXED, COMPOSITION: 10 kΩ, 5%, 1/4W	2	RCR07G103JS	81349	01121
R3	Same as R1				
R4	RESISTOR, FIXED, COMPOSITION: 56 kΩ, 5%, 1/4W	2	RCR07G563JS	81349	01121
R5	RESISTOR, FIXED, COMPOSITION: 68 kΩ, 5%, 1/4W	1	RCR07G683JS	81349	01121
R6	Same as R4				
R7	RESISTOR, FIXED, COMPOSITION: 27 kΩ, 5%, 1/4W (DMS-107)	1	RCR07G273JS	81349	01121
R7	RESISTOR, FIXED, COMPOSITION: 15 kΩ, 5%, 1/4W (DMS-107-1)	1	RCR07G153JS	81349	01121
R8	RESISTOR, FIXED, COMPOSITION: 15 kΩ, 5%, 1/4W (DMS-107)	1	RCR07G153JS	81349	01121
R8	RESISTOR, FIXED, COMPOSITION: 12 kΩ, 5%, 1/4W (DMS-107-1)	1	RCR07G123JS	81349	01121
R9	RESISTOR, FIXED, COMPOSITION: 22 kΩ, 5%, 1/4W	1	RCR07G223JS	81349	01121
R10	RESISTOR, VARIABLE, COMPOSITION: 50 kΩ, 10%, 2W	1	RV4NAYSD503A	81349	01121
R11	RESISTOR, FIXED, COMPOSITION: 150 kΩ, 5%, 1/4W	1	RCR07G154JS	81349	01121
R12	RESISTOR, FIXED, COMPOSITION: 56 Ω, 5%, 1/4W	2	RCR07G560JS	81349	01121
R13	Same as R12				
R14	NOT USED				
R15	RESISTOR, VARIABLE, COMPOSITION: 10 kΩ, 10%, 2W	1	RV4NAYSD103A	81349	01121

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R16	RESISTOR, VARIABLE, COMPOSITION: 1 kΩ, 10%, 2W	1	RV4NAYSD102A	81349	01121
R17	RESISTOR, VARIABLE, COMPOSITION: 25 kΩ, 10%, 2W	1	RV4NAYSD253A	81349	01121
R18	RESISTOR, FIXED, COMPOSITION: 180 Ω, 5%, 1/4W	1	RCR07G181JS	81349	01121
R19	RESISTOR, FIXED, COMPOSITION: 1.0 kΩ, 5%, 1/4W	1	RCR07G102JS	81349	01121
R20	RESISTOR, FIXED, COMPOSITION: 470 Ω, 5%, 1/4W	1	RCR07G471JS	81349	01121
R21	RESISTOR, FIXED, COMPOSITION: 6.2 kΩ, 5%, 1/4W	1	RCR07G622JS	81349	01121
R22	Same as R2				
R23	RESISTOR, FIXED, COMPOSITION: 8.2 kΩ, 5%, 1/4W	1	RCR07G822JS	81349	01121
R24	RESISTOR, FIXED, COMPOSITION: 3.9 kΩ, 5%, 1/4W (DMS-107)	1	RCR07G392JS	81239	01121
R24	RESISTOR, FIXED, COMPOSITION: 2.2 kΩ, 5%, 1/4W (DMS-107-1)	1	RCR07G222JS	81349	01121
R25	RESISTOR, FIXED, COMPOSITION: 2.2 kΩ, 5%, 1/4W (DMS-107)	1	RCR07G222JS	81349	01121
R25	RESISTOR, FIXED, COMPOSITION: 1.8 kΩ, 5%, 1/4W (DMS-107-1)	1	RCR07G182JS	81349	01121
S1	SWITCH, ROTARY	1	1128-42	14632	
S2	SWITCH, ROTARY	1	16910-1	14632	
S3	SWITCH, ROTARY	1	1128-03	14632	
S4	SWITCH, TOGGLE	1	8280K16	27193	
S5	SWITCH, SLIDE	1	46256LFR	82389	
TB1	TERMINAL BOARD	1	353-18-03-001	71785	
T1	POWER TRANSFORMER	1	14238	14632	
VR1	DIODE, ZENER: 8.2 V	1	1N756A	80131	04713
VR2	DIODE, ZENER: 6.2 V (DMS-107-1)	2	1N753A	80131	04713

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
VR3	Same as VR2 (DMS-107-1)				
W1	CABLE ASSEMBLY	1	30020-	14632	
W2	CABLE ASSEMBLY	1	30020-	14632	
W3	CABLE ASSEMBLY	1	30020-	14632	
W4	CABLE ASSEMBLY	1	30020-	14632	
W5	CABLE ASSEMBLY	1	30020-	14632	
XA4	CONNECTOR, PRINTED CIRCUIT BOARD	22	250-22-30-170	71785	
XA5	Same as XA4				
XA6A	Same as XA4				
XA6B	Same as XA4				
XA7A	Same as XA4				
XA7B	Same as XA4				
XA8A	Same as XA4				
XA8B	Same as XA4				
XA9A	Same as XA4				
XA9B	Same as XA4				
XA10A	Same as XA4				
XA10B	Same as XA4				
XA11A	Same as XA4				
XA11B	Same as XA4				
XA12A	Same as XA4				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
XA12B	Same as XA4				
XA13A	Same as XA4				
XA13B	Same as XA4				
XA14	Same as XA4				
XA15	Same as XA4				
XF1	FUSEHOLDER	2	342004	75915	
XF2	Same as XF1				
XMP1A	Same as XA4				
XMP1B	Same as XA4				

5.4.2 Type 79586 Input Mixer Assembly

REF DESIG PREFIX A1 (DMS-107 And DMS-107-1)

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
A1	INPUT MIXER PRINTED CIRCUIT ASSEMBLY	1	15810	14632	
C1	CAPACITOR, CERAMIC, FEEDTHRU: 1000 pF, GMV, 500 V	8	FA5C102W	01121	
C2 Thru C8	Same as C1				
E1	TERMINAL, FEEDTHRU	1	SFU16	04013	
J1	CONNECTOR, RECEPTACLE: MB SERIES	6	46025	74868	
J2 Thru J6	Same as J1				

5.4.2.1 Part 15810 Input Mixer Printed Circuit Assembly — REF DESIG PREFIX A1A1 (DMS-107 And DMS-107-1)

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
CR1	DIODE	1	1N462A	80131	93332
C1	CAPACITOR, CERAMIC, DISC: 0.1 μF, -20+80%, 25 V	9	DFJ3	73899	
C2	Same as C1				
C3	CAPACITOR, CERAMIC, DISC: 5000 pF, 20%, 100 V	9	C023B101E502M	56289	
C4	Same as C3				
C5	Same as C1				
C6	CAPACITOR, ELECTROLYTIC, TANTALUM: 1.0 μF, 10%, 35 V	2	CS13BF105K	81349	56289
C7	Same as C3				
C8	Same as C6				
C9	Same as C3				
C10	CAPACITOR, MICA, DIPPED: 150 pF, 2%, 500 V	2	CM05FD151G03	81349	72136
C11	Same as C3				
C12	Same as C3				
C13	Same as C1				
C14	Same as C3				
C15	CAPACITOR, MICA, DIPPED: 200 pF, 2%, 500 V	1	CM05FD201G03	81349	72136
C16	Same as C3				
C17	Same as C3				
C18	CAPACITOR, MICA, DIPPED: 240 pF, 2%, 500 V	2	CM05FD241G03	81349	72136
C19	CAPACITOR, MICA, DIPPED: 390 pF, 2%, 500 V	2	CM05FD391G03	81349	72136
C20	Same as C19				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
C21	Same as C18				
C22	CAPACITOR, ELECTROLYTIC, TANTALUM: 10 μF, 10%, 35 V	1	CS13BF106K	81349	56289
C23	Same as C1				
C24	Same as C1				
C25	Same as C1				
C26	CAPACITOR, CERAMIC, DISC: 0.01 μF, 20%, 100 V	2	C023B101F103M	56289	
C27	Same as C26				
C28	Same as C1				
C29	Same as C10				
C30	Same as C1				
L1	INDUCTOR	2	1131-28	14632	
L2	INDUCTOR	1	1131-26	14632	
L3	Same as L1				
L4	COIL, FIXED: 9100 μH, 5%	1	2500-74	99800	
Q1	TRANSISTOR	5	2N5109	80131	02735
Q2 Thru Q5	Same as Q1				
Q6	TRANSISTOR	1	3N187	02735	
RA1	HEATSINK	5	3AL635-2R	07387	
RA2 Thru RA5	Same as RA1				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R1	RESISTOR, FIXED, COMPOSITION: 5.6 kΩ, 5%, 1/4W	2	RCR07G562JS	81349	01121
R2	Same as R1				
R3	RESISTOR, FIXED, COMPOSITION: 5.1 kΩ, 5%, 1/4W	2	RCR07G512JS	81349	01121
R4	RESISTOR, FIXED, COMPOSITION: 2.2 kΩ, 5%, 1/4W	2	RCR07G222JS	81349	01121
R5	RESISTOR, FIXED, COMPOSITION: 12 Ω, 5%, 1/4W	3	RCR07G120JS	81349	01121
R6	RESISTOR, FIXED, COMPOSITION: 56 Ω, 5%, 1/4W	3	RCR07G560JS	81349	01121
R7	RESISTOR, FIXED, COMPOSITION: 510 Ω, 5%, 1/4W	2	RCR07G511JS	81349	01121
R8	Same as R6				
R9	RESISTOR, FIXED, COMPOSITION: 1.0 kΩ, 5%, 1/4W	2	RCR07G102JS	81349	01121
R10	RESISTOR, FIXED, COMPOSITION: 47 Ω, 5%, 1/4W	1	RCR07G470JS	81349	01121
R11	RESISTOR, FIXED, COMPOSITION: 390 Ω, 5%, 1/4W	1	RCR07G391JS	81349	01121
R12	RESISTOR, FIXED, COMPOSITION: 150 Ω, 5%, 1/4W	4	RCR07G151JS	81349	01121
R13	Same as R3				
R14	Same as R4				
R15	RESISTOR, FIXED, COMPOSITION: 5.6 Ω, 5%, 1/4W	1	RCR07G5R6JS	81349	01121
R16	RESISTOR, FIXED, COMPOSITION: 10 Ω, 5%, 1/4W	3	RCR07G100JS	81349	01121
R17	Same as R12				
R18	RESISTOR, FIXED, COMPOSITION: 22 Ω, 5%, 1/4W	1	RCR07G220JS	81349	01121
R19	RESISTOR, FIXED, COMPOSITION: 39 Ω, 5%, 1/4W	2	RCR07G390JS	81349	01121
R20	Same as R5				
R21	Same as R19				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R22	Same as R12				
R23	Same as R9				
R24*	RESISTOR, FIXED, COMPOSITION: 100 Ω, 5%, 1/4W	6	RCR07G101JS	81349	01121
R25	RESISTOR, FIXED, COMPOSITION: 8.2 kΩ, 5%, 1/4W	1	RCR07G822JS	81349	01121
R26	RESISTOR, FIXED, COMPOSITION: 3.6 kΩ, 5%, 1/4W	1	RCR07G362JS	81349	01121
R27	RESISTOR, FIXED, COMPOSITION: 300 Ω, 5%, 1/4W	2	RCR07G301JS	81349	01121
R28	RESISTOR, FIXED, COMPOSITION: 18 Ω, 5%, 1/4W	1	RCR07G180JS	81349	01121
R29	Same as R27				
R30	Same as R16				
R31	RESISTOR, FIXED, COMPOSITION: 240 Ω, 5%, 1/4W	1	RCR07G241JS	81349	01121
R32	Same as R5				
R33	Same as R16				
R34	RESISTOR, FIXED, COMPOSITION: 180 Ω, 5%, 1/4W	2	RCR07G181JS	81349	01121
R35	RESISTOR, FIXED, COMPOSITION: 30 Ω, 5%, 1/4W	1	RCR07G300JS	81349	01121
R36	Same as R34				
R37	Same as R7				
R38	Same as R6				
R39	Same as R24				
R40	RESISTOR, FIXED, COMPOSITION: 6.8 kΩ, 5%, 1/4W	1	RCR07G682JS	81349	01121
R41	RESISTOR, FIXED, COMPOSITION: 56 kΩ, 5%, 1/4W	1	RCR07G563JS	81349	01121
R42	RESISTOR, FIXED, COMPOSITION: 18 kΩ, 5%, 1/4W	1	RCR07G183JS	81349	01121

* Nominal value; final value to be factory selected.

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R43	RESISTOR, TRIM, FILM: 100 kΩ, 10%, 1/2W	1	62PR100K	73138	
R44	RESISTOR, FIXED, COMPOSITION: 470 kΩ, 5%, 1/4W	1	RCR07G474JS	81349	01121
R45	RESISTOR, FIXED, COMPOSITION: 1.0 MΩ, 5%, 1/4W	1	RCR07G105JS	81349	01121
R46	Same as R24				
R47	Same as R24				
R48	RESISTOR, FIXED, COMPOSITION: 75 Ω, 5%, 1/4W	1	RCR07G750JS	81349	01121
R49	RESISTOR, FIXED, COMPOSITION: 330 Ω, 5%, 1/4W	1	RCR07G331JS	81349	01121
R50	RESISTOR, FIXED, COMPOSITION: 20 kΩ, 5%, 1/4W	1	RCR07G203JS	81349	01121
R51	RESISTOR, FIXED, COMPOSITION: 10 kΩ, 5%, 1/4W	1	RCR07G103JS	81349	01121
R52	RESISTOR, TRIM, FILM: 20 kΩ, 10%, 1/2W	1	62PR20K	73138	
R53	RESISTOR, FIXED, COMPOSITION: 68 kΩ, 5%, 1/4W	1	RCR07G683JS	81349	01121
R53	Same as R24				
R55	RESISTOR, FIXED, COMPOSITION: 560 Ω, 5%, 1/4W	1	RCR07G561JS	81349	01121
R56	RESISTOR, FIXED, COMPOSITION: 330 Ω, 5%, 1/4W	1	RCR07G331JS	81349	01121
R57	Same as R12				
R58	RESISTOR, FIXED, COMPOSITION: 220 Ω, 5%, 1/4W	1	RCR07G221JS	81349	01121
R59	Same as R24				
T1	TRANSFORMER	2	20937-21	14632	
T2	Same as T1				
U1	MIXER, BALANCED	1	M6	27956	
U2	INTEGRATED CIRCUIT	1	U5B7741393	07263	

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
A1	IF OUTPUT AMPLIFIER PRINTED CIRCUIT ASSEMBLY	1	15614-1	14632	
C1	CAPACITOR, CERAMIC, FEEDTHRU: 1000 pF, GMV, 500 V	2	FA5C102W	01121	
C2	Same as C1				
J1	CONNECTOR, RECEPTACLE	2	46025	74868	
J2	Same as J1				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
C1	CAPACITOR, CERAMIC, DISC: 1000 pF, GMV, 500 V	1	SM1000PFP	91418	
C2	CAPACITOR, CERAMIC, DISC: 5000 pF, 20%, 100 V	3	C023B101E502M	56289	
C3	Same as C2				
C4	Same as C2				
Q1	TRANSISTOR	2	2N5109	80131	02735
Q2	Same as Q1				
RA1	HEATSINK	2	3AL635-2R	07387	
RA2	Same as RA1				
R1	RESISTOR, FIXED, COMPOSITION: 2.2 kΩ, 5%, 1/4W	2	RCR07G222JS	81349	01121
R2	RESISTOR, FIXED, COMPOSITION: 100 Ω, 5%, 1/8W	1	RCR05G101JS	81349	01121
R3	RESISTOR, FIXED, COMPOSITION: 3.3 kΩ, 5%, 1/4W	1	RCR07G332JS	81349	01121
R4	RESISTOR, FIXED, COMPOSITION: 1.0 kΩ, 5%, 1/4W	1	RCR07G102JS	81349	01121
R5	RESISTOR, FIXED, COMPOSITION: 240 Ω, 5%, 1/4W	1	RCR07G241JS	81349	01121
R6*	RESISTOR, FIXED, COMPOSITION: 9.1 Ω, 5%, 1/4W	1	RCR07G9R1JS	81349	01121
R7	RESISTOR, FIXED, COMPOSITION: 47 Ω, 5%, 1/4W	2	RCR07G470JS	81349	01121
R8	Same as R1				
R9	Same as R7				
R10	RESISTOR, FIXED, COMPOSITION: 4.7 kΩ, 5%, 1/4W	1	RCR07G472JS	81349	01121
R11	RESISTOR, FIXED, COMPOSITION: 120 Ω, 5%, 1/4W	1	RCR07G121JS	81349	01121
T1	TRANSFORMER	1	20937-15	14632	

* Nominal value; final value factory selected.

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
A1	LOCAL OSCILLATOR	1	7755	14632	
A2	TAPE DRIVE ASSEMBLY	1	8587	14632	
P1	CONNECTOR, PLUG	1	SLE14PNSS	81312	
W1	CABLE ASSEMBLY	1	30020-	14632	

5.4.4.1 Type 7755 Local Oscillator

REF DESIG PREFIX A3A1 (DMS-107 And DMS-107-1)

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
A1	LOCAL OSCILLATOR PRINTED CIRCUIT ASSEMBLY	1	15430	14632	
C1	CAPACITOR, VARIABLE AIR: 6.5-62.36 pF, 500 V	1	C28-341-20/.012	23783	
C2	CAPACITOR, VARIABLE, GLASS: 1-28 pF, 1000 V	1	MC603	73899	
C3	CAPACITOR, CERAMIC, FEEDTHRU: 1000 pF, 20%, 500 V	5	CK70AW102M	81349	56289
C4 Thru C7	Same as C3				
J1	CONNECTOR, RECEPTACLE	1	46025	74868	
L1	COIL, VARIABLE: 1.7-3.5 μH	1	1472-3	14632	

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
CR1	DIODE	1	1N462A	80131	93332
CR2	DIODE, VARICAP	1	BB109-YELLOW	25088	
C1	CAPACITOR, ELECTROLYTIC, TANTALUM: 4.7 μF, 10%, 35 V	1	CS13BF475K	81349	56289
C2	CAPACITOR, CERAMIC, DISC: 0.05 μF, -20+80%, 20 V	1	UK20-503	71590	
C3	CAPACITOR, CERAMIC, TUBULAR: 3.6 pF, ±0.25 pF, 500 V	1	301-000C0J0-369C	72982	
C4	CAPACITOR, CERAMIC, TUBULAR: 10 pF, ±0.5 pF, 500 V	2	301-000C0H0-100D	72982	
C5	Same as C4				
C6	CAPACITOR, CERAMIC, TUBULAR: 8.2 pF, ±0.5 pF, 500 V	1	301-000C0H0-829D	72982	
C7	CAPACITOR, MICA, DIPPED: 680 pF, 5%, 300 V	1	DM15-681J	72136	
C8	CAPACITOR, MICA, DIPPED: 180 pF, 2%, 500 V	1	CM05FD181G03	81349	72136
C9	CAPACITOR, MICA, DIPPED: 1000 pF, 5%, 100 V	1	DM15-102J	72136	
L1	COIL, FIXED	1	20681-38	14632	
Q1	TRANSISTOR	1	2N3478	80131	02735
R1	RESISTOR, FIXED, COMPOSITION: 62 kΩ, 5%, 1/4W	1	RCR07G623JS	81349	01121
R2	RESISTOR, FIXED, COMPOSITION: 110 kΩ, 5%, 1/4W	2	RCR07G114JS	81349	01121
R3	Same as R2				
R4	RESISTOR, FIXED, COMPOSITION: 820 Ω, 5%, 1/4W	1	RCR07G821JS	81349	01121
R5	RESISTOR, FIXED, COMPOSITION: 47 Ω, 5%, 1/4W	2	RCR07G470JS	81349	01121
R6	RESISTOR, FIXED, COMPOSITION: 47 kΩ, 5%, 1/4W	1	RCR07G473JS	81349	01121
R7	Same as R5				
R8	RESISTOR, FIXED, COMPOSITION: 7.5 kΩ, 5%, 1/4W	1	RCR07G752JS	81349	01121

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
VR1	DIODE, ZENER: 12 V	1	1N759A	80131	04713

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
CR1	RECTIFIER ASSEMBLY	1	MDA950A3	04713	
CR2	DIODE, ZENER: 6.8 V	1	1N754A	80131	04713
CR3	DIODE	1	1N462A	80131	93332
C1	CAPACITOR, ELECTROLYTIC, ALUMINUM: 200 μF, -10+75%, 50 V	1	39D207G050FJ4	56289	
C2	CAPACITOR, ELECTROLYTIC, ALUMINUM: 10 μF, -10+75%, 50 V	1	30D106G050CB2	56289	
C3	CAPACITOR, ELECTROLYTIC, ALUMINUM: 10 μF, -10+75%, 25 V	1	30D106G025BB2	56289	
C4	CAPACITOR, MICA, DIPPED: 200 pF, 2%, 500 V	1	CM05FD201G03	81349	72136
C5	CAPACITOR, ELECTROLYTIC, TANTALUM: 47 μF, 10%, 20 V	1	CS13BE476K	81349	56289
Q1	TRANSISTOR	1	2N3055	80131	02735
Q2	TRANSISTOR	3	2N4037	80131	02735
Q3	Same as Q2				
Q4	Same as Q2				
R1	RESISTOR, FIXED, COMPOSITION: 470 Ω, 5%, 1/4W	1	RCR07G471JS	81349	01121
R2	RESISTOR, FIXED, COMPOSITION: 6.8 kΩ, 5%, 1/4W	2	RCR07G682JS	81349	01121
R3	Same as R2				
R4	RESISTOR, FIXED, COMPOSITION: 150 kΩ, 5%, 1/4W	1	RCR07G154JS	81349	01121
R5	RESISTOR, FIXED, COMPOSITION: 5.6 kΩ, 5%, 1/4W	1	RCR07G562JS	81349	01121
R6	RESISTOR, TRIM, FILM: 1 kΩ, 10%, 1/2W	1	62PAR1K	73138	
R7	RESISTOR, FIXED, COMPOSITION: 3.9 kΩ, 5%, 1/4W	1	RCR07G392JS	81349	01121
R8	RESISTOR, FIXED, COMPOSITION: 2.2 kΩ, 5%, 1/4W	2	RCR07G222JS	81349	01121
R9	RESISTOR, FIXED, COMPOSITION: 220 Ω, 5%, 1/4W	1	RCR07G221JS	81349	01121

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R10	Same as R8				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
CR1	RECTIFIER ASSEMBLY	1	MDA940A3	04713	
CR2	DIODE, ZENER: 6.8 V	1	1N754A	80131	04713
CR3	DIODE	1	1N462A	80131	93332
C1	CAPACITOR, ELECTROLYTIC, ALUMINUM: 200 μF -10+75%, 50 V	1	39D207G050FJ4	56289	
C2	CAPACITOR, ELECTROLYTIC, ALUMINUM: 10 μF, -10+75%, 50 V	1	30D106G050CB2	56289	
C3	CAPACITOR, ELECTROLYTIC, ALUMINUM: 10 μF, -10+75%, 25 V	1	30D106G025BB2	56289	
C4	CAPACITOR, ELECTROLYTIC, TANTALUM: 15 μF, 10%, 20 V	1	CS13BE156K	81349	56289
Q1	TRANSISTOR	1	2N3055	80131	02735
Q2	TRANSISTOR	3	2N2222A	80131	04713
Q3	Same as Q2				
Q4	Same as Q2				
R1	RESISTOR, FIXED, COMPOSITION: 47 Ω, 5%, 1/4W	1	RCR07G470JS	81349	01121
R2	RESISTOR, FIXED, COMPOSITION: 6.8 kΩ, 5%, 1/4W	2	RCR07G682JS	81349	01121
R3	Same as R2				
R4	RESISTOR, FIXED, COMPOSITION: 220 kΩ, 5%, 1/4W	1	RCR07G224JS	81349	01121
R5	RESISTOR, FIXED, COMPOSITION: 1.0 kΩ, 5%, 1/4W	1	RCR07G102JS	81349	01121
R6	RESISTOR, FIXED, COMPOSITION: 5.6 kΩ, 5%, 1/4W	1	RCR07G562JS	81349	01121
R7	RESISTOR, TRIM, FILM: 1 kΩ, 10%, 1/2W	1	62PAR1K	73138	
R8	RESISTOR, FIXED, COMPOSITION: 3.9 kΩ, 5%, 1/4W	1	RCR07G392JS	81349	01121
R9	RESISTOR, FIXED, COMPOSITION: 1.8 kΩ, 5%, 1/4W	1	RCR07G182JS	81349	01121
R10	RESISTOR, FIXED, COMPOSITION: 220 Ω, 5%, 1/4W	1	RCR07G221JS	81349	01121

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R11	RESISTOR, FIXED, COMPOSITION: 4.7 kΩ, 5%, 1/4W	1	RCR07G472JS	81349	01121

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
CR1	DIODE	1	1N462A	80131	93332
CR2	DIODE	2	5082-2800	28480	
CR3	Same as CR2				
C1	CAPACITOR, CERAMIC, DISC: 5000 pF, 20%, 100 V	33	C023B101E502M	56289	
C2 Thru C6	Same as C1				
C7	CAPACITOR, MICA, DIPPED: 30 pF, 2%, 500 V	1	CM05ED300G03	81349	72136
C8	CAPACITOR, MICA, DIPPED: 100 pF, 2%, 500 V	2	CM05FD101G03	81349	72136
C9 Thru C13	Same as C1				
C14	CAPACITOR, MICA, DIPPED: 22 pF, 5%, 500 V	2	CM05ED220J03	81349	72136
C15	CAPACITOR, MICA, DIPPED: 220 pF, 2%, 500 V	1	CM05FD221G03	81349	72136
C16 Thru C20	Same as C1				
C21	CAPACITOR, CERAMIC, TUBULAR: 4.7 pF, ±2.25 pF, 500 V	1	301-000C0H0-479C	72982	
C22	CAPACITOR, MICA, DIPPED: 43 pF, 2%, 500 V	1	CM05ED430G03	81349	72136
C23	CAPACITOR, MICA, DIPPED: 470 pF, 5%, 500 V	1	DM15-471J	72136	
C24	CAPACITOR, MICA, DIPPED: 68 pF, 2%, 500 V	1	CM05ED680G03	81349	72136
C25	CAPACITOR, CERAMIC, DISC: 1000 pF, GMV, 500 V	1	SM1000PFP	91418	
C26	Same as C1				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
C27	CAPACITOR, MICA, DIPPED: 15 pF, 5%, 500 V	1	CM05CD150J03	81349	72136
C28	CAPACITOR, MICA, DIPPED: 200 pF, 2%, 500 V	1	CM05FD201G03	81349	72136
C29	Same as C1				
C30	Same as C8				
C31	Same as C14				
C32 Thru C39	Same as C1				
C40	CAPACITOR, MICA, DIPPED: 39 pF, 2%, 500 V	1	CM05ED390G03	81349	72136
C41	CAPACITOR, MICA, DIPPED: 33 pF, 2%, 500 V	1	CM05ED330G03	81349	72136
C42 Thru C47	Same as C1				
C48	CAPACITOR, MICA, EIPPED: 150 pF, 2%, 500 V	1	CM05FD151G03	81349	72136
C49	Same as C1				
FL1	FILTER, BANDPASS	1	9680035	74306	
L1	COIL, FIXED: 47 μH, 10%	5	1025-60	99800	
L2	COIL, VARIABLE: 1.98-2.4 μH	4	7107-17	71279	
L3	Same as L2				
L4	Same as L1				
L5	Same as L2				
L6	Same as L1				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
L7	Same as L2				
L8	Same as L1				
L9	Same as L1				
Q1	TRANSISTOR	1	2N3478	80131	02735
Q2	TRANSISTOR	2	2N2222A	80131	04713
Q3	TRANSISTOR	1	2N3251	80131	04713
Q4	Same as Q2				
R1	RESISTOR, FIXED, COMPOSITION: 24 Ω, 5%, 1/4W	1	RCR07G240JS	81349	01121
R2	RESISTOR, FIXED, COMPOSITION: 330 Ω, 5%, 1/4W	3	RCR07G331JS	81349	01121
R3	RESISTOR, FIXED, COMPOSITION: 47 Ω, 5%, 1/4W	9	RCR07G470JS	81349	01121
R4	Same as R3				
R5	RESISTOR, FIXED, COMPOSITION: 8.2 kΩ, 5%, 1/4W	1	RCR07G822JS	81349	01121
R6	Same as R2				
R7	RESISTOR, TRIM, FILM: 100 Ω, 10%, 1/2W	1	62PAR100	73138	
R8	Same as R2				
R9	Same as R3				
R10	RESISTOR, FIXED, COMPOSITION: 10 kΩ, 5%, 1/4W	4	RCR07G103JS	81349	01121
R11	Same as R3				
R12	RESISTOR, FIXED, COMPOSITION: 100 Ω, 5%, 1/4W	10	RCR07G101JS	81349	01121
R13	RESISTOR, FIXED, COMPOSITION: 470 kΩ, 5%, 1/4W	1	RCR07G474JS	81349	01121
R14	Same as R3				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R15	Same as R12				
R16	Same as R10				
R17	RESISTOR, FIXED, COMPOSITION: 3.3 kΩ, 5%, 1/4W	1	RCR07G332JS	81349	01121
R18	RESISTOR, FIXED, COMPOSITION: 20 kΩ, 5%, 1/4W	1	RCR07G203JS	81349	01121
R19	Same as R10				
R20	RESISTOR, FIXED, COMPOSITION: 510 Ω, 5%, 1/4W	1	RCR07G511JS	81349	01121
R21	Same as R3				
R22	Same as R12				
R23	Same as R3				
R24	RESISTOR, FIXED, COMPOSITION: 4.7 kΩ, 5%, 1/4W	2	RCR07G472JS	81349	01121
R25	Same as R10				
R26	Same as R12				
R27	Same as R12				
R28	Same as R12				
R29	RESISTOR, FIXED, COMPOSITION: 330 Ω, 5%, 1/4W	1	RCR07G331JS	81349	01121
R30	Same as R3				
R31	RESISTOR, FIXED, COMPOSITION: 1.1 kΩ, 5%, 1/4W	1	RCR07G112JS	81349	01121
R32	RESISTOR, FIXED, COMPOSITION: 6.8 MΩ, 5%, 1/4W	1	RCR07G685JS	81349	01121
R33	RESISTOR, FIXED, COMPOSITION: 47 kΩ, 5%, 1/4W	1	RCR07G473JS	81349	01121
R34	Same as R3				
R35	Same as R24				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R36	Same as R12				
R37	Same as R12				
R38	Same as R12				
R39	Same as R12				
U1	INTEGRATED CIRCUIT	3	MC1550G	04713	
U2	Same as U1				
U3	Same as U1				
U4	INTEGRATED CIRCUIT	1	U5F7719393	07263	
U5	FILTER, DISCRIMINATOR	1	8680038	74306	
Y1	CRYSTAL, QUARTZ	1	96402-1	14632	

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
CR1	DIODE	1	1N462A	80131	93332
CR2	DIODE	2	5082-2800	28480	
CR3	Same as CR2				
C1	CAPACITOR, CERAMIC, DISC: 5000 pF, 20%, 100 V	33	C023B101E502M	56289	
C2 Thru C6	Same as C1				
C7	CAPACITOR, MICA, DIPPED: 30 pF, 2%, 500 V	1	CM05ED300G03	81349	72136
C8	CAPACITOR, MICA, DIPPED: 100 pF, 2%, 500 V	2	CM05FD101G03	81349	72136
C9 Thru C13	Same as C1				
C14	CAPACITOR, MICA, DIPPED: 22 pF, 5%, 500 V	2	CM05ED220J03	81349	72136
C15	CAPACITOR, MICA, DIPPED: 220 pF, 2%, 500 V	1	CM05FD221G03	81349	72136
C16 Thru C20	Same as C1				
C21	CAPACITOR, CERAMIC, TUBULAR: 4.7 pF, ±0.25 pF, 500 V	1	301-000C0H0-479C	72982	
C22	CAPACITOR, MICA, DIPPED: 43 pF, 2%, 500 V	1	CM05ED430G03	81349	72136
C23	CAPACITOR, MICA, DIPPED: 470 pF, 5%, 500 V	1	DM15-471J	72136	
C24	CAPACITOR, MICA, DIPPED: 68 pF, 2%, 500 V	1	CM05ED680G03	81349	72136
C25	CAPACITOR, CERAMIC, DISC: 1000 pF, GMV, 500 V	1	SM1000PFP	91418	
C26	Same as C1				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
C27	CAPACITOR, MICA, DIPPED: 15 pF, 5%, 500 V	1	CM05CD150J03	81349	72136
C28	CAPACITOR, MICA, DIPPED: 200 pF, 2%, 500 V	1	CM05FD201G03	81349	72136
C29	Same as C1				
C30	Same as C8				
C31	Same as C14				
C32 Thru C39	Same as C1				
C40	CAPACITOR, MICA, DIPPED: 39 pF, 2%, 500 V	1	CM05ED390G03	81349	72136
C41	CAPACITOR, MICA, DIPPED: 33 pF, 2%, 500 V	1	CM05ED330G03	81349	72136
C42 Thru C47	Same as C1				
C48	CAPACITOR, MICA, DIPPED: 51 pF, 2%, 500 V	1	CM05ED510G03	81349	72136
C49	Same as C1				
FL1	FILTER, BANDPASS	1	9680036	74306	
L1	COIL, FIXED: 47 μH, 10%	5	1025-60	99800	
L2	COIL, VARIABLE: 1.98-2.42 μH	4	7107-17	71279	
L3	Same as L2				
L4	Same as L1				
L5	Same as L2				
L6	Same as L1				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
L7	Same as L2				
L8	Same as L1				
L9	Same as L1				
Q1	TRANSISTOR	1	2N3478	80131	02735
Q2	TRANSISTOR	2	2N2222A	80131	04713
Q3	TRANSISTOR	1	2N3251	80131	04713
Q4	Same as Q2				
R1	RESISTOR, FIXED, COMPOSITION: 620 kΩ, 5%, 1/4W	1	RCR07G624JS	81349	01121
R2	RESISTOR, FIXED, COMPOSITION: 330 Ω, 5%, 1/4W	4	RCR07G331JS	81349	01121
R3	RESISTOR, FIXED, COMPOSITION: 47 Ω, 5%, 1/4W	9	RCR07G470JS	81349	01121
R4	Same as R3				
R5	RESISTOR, FIXED, COMPOSITION: 10 kΩ, 5%, 1/4W	5	RCR07G103JS	81349	01121
R6	Same as R2				
R7	RESISTOR, TRIM, FILM: 100 Ω, 10%, 1/2W	1	62PAR100	73138	
R8	Same as R2				
R9	Same as R3				
R10	Same as R5				
R11	Same as R3				
R12	RESISTOR, FIXED, COMPOSITION: 100 Ω, 5%, 1/4W	10	RCR07G101JS	81349	01121
R13	RESISTOR, FIXED, COMPOSITION: 470 kΩ, 5%, 1/4W	1	RCR07G474JS	81349	01121
R14	Same as R3				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R15	Same as R12				
R16	Same as R5				
R17	RESISTOR, FIXED, COMPOSITION: 3.3 kΩ, 5%, 1/4W	1	RCR07G332JS	81349	01121
R18	RESISTOR, FIXED, COMPOSITION: 20 kΩ, 5%, 1/4W	1	RCR07G203JS	81349	01121
R19	Same as R5				
R20	RESISTOR, FIXED, COMPOSITION: 510 Ω, 5%, 1/4W	1	RCR07G511JS	81349	01121
R21	Same as R3				
R22	Same as R12				
R23	Same as R3				
R24	RESISTOR, FIXED, COMPOSITION: 4.7 kΩ, 5%, 1/4W	2	RCR07G472JS	81349	01121
R25	Same as R5				
R26	Same as R12				
R27	Same as R12				
R28	Same as R12				
R29	Same as R2				
R30	Same as R3				
R31	RESISTOR, FIXED, COMPOSITION: 1.1 kΩ, 5%, 1/4W	1	RCR07G112JS	81349	01121
R32*	RESISTOR, FIXED, COMPOSITION: 6.8 MΩ, 5%, 1/4W	1	RCR07G685JS	81349	01121
R33	RESISTOR, FIXED, COMPOSITION: 47 kΩ, 5%, 1/4W	1	RCR07G473JS	81349	01121
R34	Same as R3				
R35	Same as R24				

* Nominal value; final value factory selected.

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R36	Same as R12				
R37	Same as R12				
R38	Same as R12				
R39	Same as R12				
U1	INTEGRATED CIRCUIT	3	MC1550G	04713	
U2	Same as U1				
U3	Same as U1				
U4	INTEGRATED CIRCUIT	1	U5F7719393	07263	
U5	FILTER, DISCRIMINATOR	1	8680039	74306	
Y1	CRYSTAL, QUARTZ	1	96402-1	14632	

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
CR1	DIODE	1	1N462A	80131	93332
CR2	DIODE	2	5082-2800	28480	
CR3	Same as CR2				
C1	CAPACITOR, CERAMIC, DISC: 5000 pF, 20%, 100 V	33	C023B101E502M	56289	
C2 Thru C6	Same as C1				
C7	CAPACITOR, MICA, DIPPED: 27 pF, 2%, 500 V	1	CM05ED270G03	81349	72136
C8	CAPACITOR, MICA, DIPPED: 100 pF, 2%, 500 V	2	CM05FD101G03	81349	72136
C9 Thru C13	Same as C1				
C14	CAPACITOR, MICA, DIPPED: 22 pF, 5%, 500 V	2	CM05ED220J03	81349	72136
C15	CAPACITOR, MICA, DIPPED: 220 pF, 2%, 500 V	1	CM05FD221G03	81349	72136
C16 Thru C20	Same as C1				
C21	CAPACITOR, CERAMIC, TUBULAR: 4.7 pF, ±0.25 pF, 500 V	1	301-000C0H0-479C	72982	
C22	CAPACITOR, MICA, DIPPED: 43 pF, 2%, 500 V	1	CM05ED430G03	81349	72136
C23	CAPACITOR, MICA, DIPPED: 470 pF, 5%, 500 V	1	DM15-471J	72136	
C24	CAPACITOR, MICA, DIPPED: 68 pF, 2%, 500 V	1	CM05ED680G03	81349	72136
C25	CAPACITOR, CERAMIC, DISC: 1000 pF, GMV, 500 V	1	SM1000PFP	91418	
C26	Same as C1				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
C27	CAPACITOR, MICA, DIPPED: 15 pF, 5%, 500 V	1	CM05CD150J03	81349	72136
C28	CAPACITOR, MICA, DIPPED: 200 pF, 2%, 500 V	1	CM05FD201G03	81349	72136
C29	Same as C1				
C30	Same as C8				
C31	Same as C14				
C32 Thru C39	Same as C1				
C40	CAPACITOR, MICA, DIPPED: 39 pF, 2%, 500 V	1	CM05ED390G03	81349	72136
C41	CAPACITOR, MICA, DIPPED: 33 pF, 2%, 500 V	1	CM05ED330G03	81349	72136
C42 Thru C47	Same as C1				
C48	CAPACITOR, MICA, DIPPED: 24 pF, 5%, 500 V	1	CM05ED240J03	81349	72136
C49	Same as C1				
FL1	FILTER, BANDPASS	1	9680037	74306	
L1	COIL, FIXED: 47 μH, 10%	5	1025-60	99800	
L2	COIL, VARIABLE: 1.98-2.42 μH	4	7107-17	71279	
L3	Same as L2				
L4	Same as L1				
L5	Same as L2				
L6	Same as L1				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
L7	Same as L2				
L8	Same as L1				
L9	Same as L1				
Q1	TRANSISTOR	1	2N3478	80131	02735
Q2	TRANSISTOR	2	2N2222A	80131	04713
Q3	TRANSISTOR	1	2N3251	80131	04713
Q4	Same as Q2				
R1	RESISTOR, FIXED, COMPOSITION: 75 Ω, 5%, 1/4W	1	RCR07G750JS	81349	01121
R2	RESISTOR, FIXED, COMPOSITION: 330 Ω, 5%, 1/4W	5	RCR07G331JS	81349	01121
R3	RESISTOR, FIXED, COMPOSITION: 47 Ω, 5%, 1/4W	9	RCR07G470JS	81349	01121
R4	Same as R3				
R5	RESISTOR, FIXED, COMPOSITION: 8.2 kΩ, 5%, 1/4W	1	RCR07G822JS	81349	01121
R6	Same as R2				
R7	RESISTOR, TRIM, FILM: 100 Ω, 10%, 1/2W	1	62PAR100	73138	
R8	Same as R2				
R9	Same as R3				
R10	RESISTOR, FIXED, COMPOSITION: 10 kΩ, 5%, 1/4W	4	RCR07G103JS	81349	01121
R11	Same as R3				
R12	RESISTOR, FIXED, COMPOSITION: 100 Ω, 5%, 1/4W	10	RCR07G101JS	81349	01121
R13	RESISTOR, FIXED, COMPOSITION: 470 kΩ, 5%, 1/4W	1	RCR07G474JS	81349	01121
R14	Same as R3				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R15	Same as R12				
R16	Same as R10				
R17	RESISTOR, FIXED, COMPOSITION: 3.3 kΩ, 5%, 1/4W	1	RCR07G332JS	81349	01121
R18	RESISTOR, FIXED, COMPOSITION: 20 kΩ, 5%, 1/4W	1	RCR07G203JS	81349	01121
R19	Same as R10				
R20	Same as R2				
R21	Same as R3				
R22	Same as R12				
R23	Same as R3				
R24	RESISTOR, FIXED, COMPOSITION: 4.7 kΩ, 5%, 1/4W	2	RCR07G472JS	81349	01121
R25	Same as R10				
R26	Same as R12				
R27	Same as R12				
R28	Same as R12				
R29	Same as R2				
R30	Same as R3				
R31	RESISTOR, FIXED, COMPOSITION: 1.1 kΩ, 5%, 1/4W	1	RCR07G112JS	81349	01121
R32*	RESISTOR, FIXED, COMPOSITION: 6.8 MΩ, 5%, 1/4W	1	RCR07G685JS	81349	01121
R33	RESISTOR, FIXED, COMPOSITION: 47 kΩ, 5%, 1/4W	1	RCR07G473JS	81349	01121
R34	Same as R3				
R35	Same as R24				

* Nominal value; final value factory selected.

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R36	Same as R12				
R37	Same as R12				
R38	Same as R12				
R39	Same as R12				
U1	INTEGRATED CIRCUIT	3	MC1550G	04713	
U2	Same as U1				
U3	Same as U1				
U4	INTEGRATED CIRCUIT	1	U5F7719393	07263	
U5	CRYSTAL DISCRIMINATOR	1	8680040	03040	
Y1	CRYSTAL, QUARTZ	1	96402-1	14632	

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
CR1	DIODE	1	1N462A	80131	93332
CR2	DIODE	4	5082-2800	28480	
CR3	Same as CR2				
CR4	Same as CR2				
CR5	Same as CR2				
C1	CAPACITOR, CERAMIC, DISC: 5000 pF, 20%, 100 V	36	C023B101E502M	56289	
C2 Thru C6	Same as C1				
C7	CAPACITOR, MICA, DIPPED: 82 pF, 2%, 500 V	3	CM05ED820G03	81349	72136
C8	CAPACITOR, CERAMIC, TUBULAR: 1.5 pF, ±0.1 pF, 500 V	3	301-000C0K0-159B	72982	
C9	CAPACITOR, MICA, DIPPED: 91 pF, 2%, 500 V	3	CM05FD910G03	81349	72136
C10	CAPACITOR, MICA, DIPPED: 1000 pF, 5%, 100 V	3	DM15-102J	72136	
C11 Thru C15	Same as C1				
C16	Same as C7				
C17	Same as C8				
C18	Same as C9				
C19	Same as C10				
C20 Thru C24	Same as C1				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
C25	Same as C7				
C26	Same as C8				
C27	Same as C9				
C28	Same as C10				
C29 Thru C34	Same as C1				
C35	CAPACITOR, MICA, DIPPED: 10 pF, ±0.5 pF, 500 V	1	CM05CD100D03	81349	72136
C36	CAPACITOR, MICA, DIPPED: 130 pF, 2%, 500 V	1	CM05FD131G03	81349	72136
C37 Thru C39	Same as C1				
C40	CAPACITOR, MICA, DIPPED: 470 pF, 5%, 500 V	1	DM15-471J	72136	
C41	CAPACITOR, MICA, DIPPED: 22 pF, 5%, 500 V	2	CM05ED220J03	81349	72136
C42	Same as C1				
C43	Same as C1				
C44	CAPACITOR, MICA, DIPPED: 100 pF, 2%, 500 V	1	CM05FD101G03	81349	72136
C45 Thru C51	Same as C1				
C52	CAPACITOR, MICA, DIPPED: 47 pF, 2%, 500 V	2	CM05ED470G03	81349	72136
C53	Same as C52				
C54	CAPACITOR, MICA, DIPPED: 120 pF, 2%, 500 V	2	CM05FD121G03	81349	72136

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
C55	Same as C54				
C56	Same as C41				
C57	Same as C1				
C58	Same as C1				
C59	CAPACITOR, CERAMIC, DISC: 2200 pF, 10%, 200 V	1	CK06BX222K	81349	56289
L1	COIL, FIXED: 47 μH, 10%	10	1025-60	99800	
L2	COIL, VARIABLE: 0.612-0.748 μH	6	7107-11	71279	
L3	Same as L2				
L4	Same as L1				
L5	Same as L2				
L6	Same as L2				
L7	Same as L1				
L8	Same as L2				
L9	Same as L2				
L10	Same as L1				
L11	Same as L1				
L12	COIL, VARIABLE: 2.97-3.63 μH	1	7107-19	71279	
L13	Same as L1				
L14	Same as L1				
L15	COIL, VARIABLE: 0.9-1.1 μH	1	7107-13	71279	
L16	INDUCTOR	1	1131-87	14632	

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
L17	Same as L1				
L18	Same as L1				
L19	Same as L1				
Q1	TRANSISTOR	2	2N2222A	80131	04713
Q2	TRANSISTOR	1	2N3251	80131	04713
Q3	Same as Q1				
R1	RESISTOR, FIXED, COMPOSITION: 82 Ω, 5%, 1/4W	1	RCR07G820JS	81349	01121
R2	RESISTOR, FIXED, COMPOSITION: 47 Ω, 5%, 1/4W	12	RCR07G470JS	81349	01121
R3	RESISTOR, FIXED, COMPOSITION: 330 Ω, 5%, 1/4W	2	RCR07G331JS	81349	01121
R4	RESISTOR, FIXED, COMPOSITION: 47 kΩ, 5%, 1/4W	7	RCR07G473JS	81349	01121
R5	Same as R2				
R6	Same as R4				
R7	RESISTOR, TRIM, FILM: 100 Ω, 10%, 1/2W	1	62PAR100	73138	
R8	Same as R2				
R9	Same as R3				
R10	Same as R4				
R11	Same as R2				
R12	NOT USED				
R13	Same as R2				
R14	RESISTOR, FIXED, COMPOSITION: 100 Ω, 5%, 1/4W	7	RCR07G101JS	81349	01121
R15	Same as R4				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R16	Same as R4				
R17	Same as R2				
R18	Same as R2				
R19	Same as R14				
R20	RESISTOR, FIXED, COMPOSITION: 10 kΩ, 5%, 1/4W	2	RCR07G103JS	81349	01121
R21	RESISTOR, FIXED, COMPOSITION: 3.3 kΩ, 5%, 1/4W	1	RCR07G332JS	81349	01121
R22	Same as R20				
R23	RESISTOR, FIXED, COMPOSITION: 510 Ω, 5%, 1/4W	1	RCR07G511JS	81349	01121
R24	RESISTOR, FIXED, COMPOSITION: 4.7 kΩ, 5%, 1/4W	2	RCR07G472JS	81349	01121
R25	NOT USED				
R26	Same as R14				
R27	Same as R2				
R28	Same as R24				
R29	Same as R14				
R30	RESISTOR, FIXED, COMPOSITION: 33 Ω, 5%, 1/4W	3	RCR07G330JS	81349	01121
R31	Same as R2				
R32	RESISTOR, FIXED, COMPOSITION: 51 Ω, 5%, 1/4W	1	RCR07G510JS	81349	01121
R33	RESISTOR, FIXED, COMPOSITION: 150 Ω, 5%, 1/4W	1	RCR07G151JS	81349	01121
R34	Same as R14				
R35	Same as R2				
R36	Same as R14				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R37	RESISTOR, FIXED, COMPOSITION: 100 kΩ, 5%, 1/4W	2	RCR07G104JS	81349	01121
R38	Same as R37				
R39	Same as R4				
R40	Same as R2				
R41	Same as R14				
R42	Same as R2				
R43	RESISTOR, FIXED, COMPOSITION: 2.2 kΩ, 5%, 1/4W	1	RCR07G222JS	81349	01121
R44	Same as R30				
R45	Same as R4				
T1	TRANSFORMER	1	22348-1	14632	
U1	INTEGRATED CIRCUIT	4	MC1550G	04713	
U2 Thru U4	Same as U1				
U5	INTEGRATED CIRCUIT	1	U5F7719393	07263	

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
CR1	DIODE	1	1N462A	80131	93332
CR2	DIODE	4	5082-2800	28480	
CR3 Thru CR5	Same as CR2				
C1	CAPACITOR, CERAMIC, DISC: 5000 pF, 20%, 100 V	36	C023B101E502M	56289	
C2 Thru C6	Same as C1				
C7	CAPACITOR, MICA, DIPPED: 82 pF, 2%, 500 V	3	CM05ED820G03	81349	72136
C8	CAPACITOR, CERAMIC, TUBULAR: 2.4 pF, ±0.25 pF, 500 V	3	301-000C0J0-249C	72982	
C9	CAPACITOR, MICA, DIPPED: 91 pF, 2%, 500 V	3	CM05FD910G03	81349	72136
C10	CAPACITOR, MICA, DIPPED: 1000 pF, 5%, 100 V	2	DM15-102J	72136	
C11 Thru C15	Same as C1				
C16	Same as C7				
C17	Same as C8				
C18	Same as C9				
C19	Same as C10				
C20 Thru C24	Same as C1				
C25	Same as C7				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
C26	Same as C8				
C27	Same as C9				
C28	CAPACITOR, MICA, DIPPED: 750 pF, 5%, 300 V	1	DM15-751J	72136	
C29 Thru C34	Same as C1				
C35	CAPACITOR, MICA, DIPPED: 10 pF, ±0.5 pF, 500 V	1	CM05CD100D03	81349	72136
C36	CAPACITOR, MICA, DIPPED: 130 pF, 2%, 500 V	1	CM05FD131G03	81349	72136
C37 Thru C39	Same as C1				
C40	CAPACITOR, MICA, DIPPED: 470 pF, 5%, 500 V	1	DM15-471J	72136	
C41	CAPACITOR, MICA, DIPPED: 130 pF, 2%, 500 V	2	CM05FD131G03	81349	72136
C42	Same as C1				
C43	Same as C1				
C44	CAPACITOR, MICA, DIPPED: 100 pF, 2%, 500 V	1	CM05FD101G03	81349	72136
C45 Thru C51	Same as C1				
C52	CAPACITOR, MICA, DIPPED: 47 pF, 2%, 500 V	2	CM05ED470G03	81349	72136
C53	Same as C52				
C54	CAPACITOR, MICA, DIPPED: 120 pF, 2%, 500 V	2	CM05FD121G03	81349	72136
C55	Same as C54				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
C56	Same as C41				
C57	Same as C1				
C58	Same as C1				
C59	CAPACITOR, CERAMIC, DISC: 2200 pF, 10%, 200 V	1	CK06BX222K	81349	56289
L1	COIL, FIXED: 47 μH, 10%	10	1025-60	99800	
L2	COIL, VARIABLE: 0.612-0.748 μH	6	7107-11	71279	
L3	Same as L2				
L4	Same as L1				
L5	Same as L2				
L6	Same as L2				
L7	Same as L1				
L8	Same as L2				
L9	Same as L2				
L10	Same as L1				
L11	Same as L1				
L12	COIL, VARIABLE: 2.97-3.63 μH	1	7107-19	72179	
L13	Same as L1				
L14	Same as L1				
L15	COIL, VARIABLE: 0.90-1.01 μH	1	7107-13	71279	
L16	INDUCTOR	1	1131-87	14632	
L17	Same as L1				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
L18	Same as L1				
L19	Same as L1				
Q1	TRANSISTOR	2	2N2222A	80131	04713
Q2	TRANSISTOR	1	2N3251	80131	04713
Q3	Same as Q1				
R1	RESISTOR, FIXED, COMPOSITION: 22 Ω, 5%, 1/4W	1	RCR07G220JS	81349	01121
R2	RESISTOR, FIXED, COMPOSITION: 47 Ω, 5%, 1/4W	12	RCR07G470JS	81349	01121
R3	RESISTOR, FIXED, COMPOSITION: 330 Ω, 5%, 1/4W	2	RCR07G331JS	81349	01121
R4	RESISTOR, FIXED, COMPOSITION: 15 kΩ, 5%, 1/4W	6	RCR07G153JS	81349	01121
R5	Same as R2				
R6	Same as R4				
R7	RESISTOR, TRIM, FILM: 100 Ω, 10%, 1/2W	1	62PAR100	73138	
R8	Same as R2				
R9	Same as R3				
R10	Same as R4				
R11	Same as R2				
R12	NOT USED				
R13	Same as R2				
R14	RESISTOR, FIXED, COMPOSITION: 100 Ω, 5%, 1/4W	7	RCR07G101JS	81349	01121
R15	Same as R4				
R16	Same as R4				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R17	Same as R2				
R18	Same as R2				
R19	Same as R14				
R20	RESISTOR, FIXED, COMPOSITION: 10 kΩ, 5%, 1/4W	2	RCR07G103JS	81349	01121
R21	RESISTOR, FIXED, COMPOSITION: 3.3 kΩ, 5%, 1/4W	1	RCR07G332JS	81349	01121
R22	Same as R20				
R23	RESISTOR, FIXED, COMPOSITION: 270 Ω, 5%, 1/4W	1	RCR07G271JS	81349	01121
R24	RESISTOR, FIXED, COMPOSITION: 4.7 kΩ, 5%, 1/4W	2	RCR07G472JS	81349	01121
R25	NOT USED				
R26	Same as R14				
R27	Same as R2				
R28	Same as R24				
R29	Same as R14				
R30	RESISTOR, FIXED, COMPOSITION: 33 Ω, 5%, 1/4W	2	RCR07G330JS	81349	01121
R31	Same as R2				
R32	RESISTOR, FIXED, COMPOSITION: 51 Ω, 5%, 1/4W	1	RCR07G510JS	81349	01121
R33	RESISTOR, FIXED, COMPOSITION: 150 Ω, 5%, 1/4W	1	RCR07G151JS	81349	01121
R34	Same as R14				
R35	Same as R2				
R36	Same as R14				
R37	RESISTOR, FIXED, COMPOSITION: 100 kΩ, 5%, 1/4W	2	RCR07G104JS	81349	01121

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R38	Same as R37				
R39	RESISTOR, FIXED, COMPOSITION: 47 kΩ, 5%, 1/4W	1	RCR07G473JS	81349	01121
R40	Same as R2				
R41	Same as R14				
R42	Same as R2				
R43	RESISTOR, FIXED, COMPOSITION: 2.2 kΩ, 5%, 1/4W	1	RCR07G222JS	81349	01121
R44	Same as R2				
R45	Same as R2				
T1	TRANSFORMER	1	22348-1	14632	
U1	INTEGRATED CIRCUIT	4	MC1550G	04713	
U2 Thru U4	Same as U1				
U5	INTEGRATED CIRCUIT	1	U5F7719393	07263	

5.4.12 Type 72282 21.4 MHz IF Amplifier (1 MHz BW) REF DESIG PREFIX A11 (DMS-107 And DMS-107-1)

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
CR1	DIODE	1	1N462A	80131	93332
CR2	DIODE	4	5082-2800	28480	
CR3 Thru CR5	Same as CR2				
C1	CAPACITOR, CERAMIC, DISC: 5000 pF, 20%, 100 V	36	C023B101E502M	56289	
C2 Thru C6	Same as C1				
C7	CAPACITOR, MICA, DIPPED: 82 pF, 2%, 500 V	3	CM05ED820G03	81349	72136
C8	CAPACITOR, CERAMIC, TUBULAR: 4.3 pF, ±0.25 pF, 500 V	3	301-000C0H0-439C	72982	
C9	CAPACITOR, MICA, DIPPED: 91 pF, 2%, 500 V	3	CM05FD910G03	81349	72136
C10	CAPACITOR, MICA, DIPPED: 750 pF, 5%, 300 V	3	DM15-751J	72136	
C11 Thru C15	Same as C1				
C16	Same as C7				
C17	Same as C8				
C18	Same as C9				
C19	Same as C10				
C20 Thru C24	Same as C1				
C25	Same as C7				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
C26	Same as C8				
C27	Same as C9				
C28	Same as C10				
C29 Thru C34	Same as C1				
C35	CAPACITOR, MICA, DIPPED: 12 pF, 5%, 500 V	2	CM05CD120J03	81349	72136
C36	CAPACITOR, MICA, DIPPED: 150 pF, 2%, 500 V	1	CM05FD151G03	81349	72136
C37 Thru C39	Same as C1				
C40	CAPACITOR, MICA, DIPPED: 220 pF, 2%, 500 V	1	CM05FD221G03	81349	72136
C41	CAPACITOR, MICA, DIPPED: 30 pF, 2%, 500 V	1	CM05ED300G03	81349	72136
C42	Same as C1				
C43	Same as C1				
C44	CAPACITOR, CERAMIC, DISC: 2200 pF, 10%, 200 V	2	CK06BX222K	81349	56289
C45 Thru C51	Same as C1				
C52	Same as C35				
C53	CAPACITOR, MICA, DIPPED: 47 pF, 2%, 500 V	1	CM05ED470G03	81349	72136
C54	CAPACITOR, ELECTROLYTIC, TANTALUM: 47 μF, 10%, 35 V	2	CS13BF476K	81349	56289
C55	Same as C54				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
C56	CAPACITOR, MICA, DIPPED: 22 pF, 5%, 500 V	1	CM05ED220J03	81349	72136
C57	Same as C1				
C58	Same as C1				
C59	Same as C44				
L1	COIL, FIXED: 47 μH, 10%	10	1025-60	99800	
L2	COIL, VARIABLE: 0.612-0.748 μH	6	7107-11	71279	
L3	Same as L2				
L4	Same as L1				
L5	Same as L2				
L6	Same as L2				
L7	Same as L1				
L8	Same as L2				
L9	Same as L2				
L10	Same as L1				
L11	Same as L1				
L12	COIL, VARIABLE: 2.97-3.63 μH	1	7107-19	71279	
L13	Same as L1				
L14	Same as L1				
L15	COIL, VARIABLE: 1.98-2.42 μH	1	7107-17	71279	
L16	INDUCTOR	1	1131-91	14632	
L17	Same as L1				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
L18	Same as L1				
L19	Same as L1				
Q1	TRANSISTOR	2	2N2222A	80131	04713
Q2	TRANSISTOR	1	2N3251	80131	04713
Q3	Same as Q1				
R1	RESISTOR, FIXED, COMPOSITION: 10 Ω, 5%, 1/4W	1	RCR07G100JS	81349	01121
R2	RESISTOR, FIXED, COMPOSITION: 47 Ω, 5%, 1/4W	12	RCR07G470JS	81349	01121
R3	RESISTOR, FIXED, COMPOSITION: 330 Ω, 5%, 1/4W	2	RCR07G331JS	81349	01121
R4	RESISTOR, FIXED, COMPOSITION: 3.9 kΩ, 5%, 1/4W	6	RCR07G392JS	81349	01121
R5	Same as R2				
R6	Same as R4				
R7	RESISTOR, TRIM, FILM: 100 Ω, 10%, 1/2W	1	62PAR100	73138	
R8	Same as R2				
R9	Same as R3				
R10	Same as R4				
R11	Same as R2				
R12	NOT USED				
R13	Same as R2				
R14	RESISTOR, FIXED, COMPOSITION: 100 Ω, 5%, 1/4W	7	RCR07G101JS	81349	01121
R15	Same as R4				
R16	Same as R4				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R17	Same as R2				
R18	Same as R2				
R19	Same as R14				
R20	RESISTOR, FIXED, COMPOSITION: 10 kΩ, 5%, 1/4W	3	RCR07G103JS	81349	01121
R21	RESISTOR, FIXED, COMPOSITION: 3.3 kΩ, 5%, 1/4W	1	RCR07G332JS	81349	01121
R22	Same as R20				
R23	RESISTOR, FIXED, COMPOSITION: 510 Ω, 5%, 1/4W	1	RCR07G511JS	81349	01121
R24	Same as R20				
R25	NOT USED				
R26	Same as R14				
R27	Same as R2				
R28	RESISTOR, FIXED, COMPOSITION: 4.7 kΩ, 5%, 1/4W	3	RCR07G472JS	81349	01121
R29	Same as R14				
R30	RESISTOR, FIXED, COMPOSITION: 33 Ω, 5%, 1/4W	2	RCR07G330JS	81349	01121
R31	Same as R2				
R32	RESISTOR, FIXED, COMPOSITION: 51 Ω, 5%, 1/4W	1	RCR07G510JS	81349	01121
R33	RESISTOR, FIXED, COMPOSITION: 150 Ω, 5%, 1/4W	1	RCR07G151JS	81349	01121
R34	Same as R14				
R35	Same as R2				
R36	Same as R14				
R37	Same as R28				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R38	Same as R28				
R39	RESISTOR, FIXED, COMPOSITION: 47 kΩ, 5%, 1/4W	3	RCR07G473JS	81349	01121
R40	Same as R2				
R41	Same as R14				
R42	Same as R2				
R43	RESISTOR, FIXED, COMPOSITION: 2.2 kΩ, 5%, 1/4W	1	RCR07G222JS	81349	01121
R44	Same as R30				
R45	Same as R4				
R46	Same as R39				
R47	Same as R39				
T1	TRANSFORMER	1	22348-2	14632	
U1	INTEGRATED CIRCUIT	4	MC1550G	04713	
U2 Thru U4	Same as U1				
U5	INTEGRATED CIRCUIT	1	U5F7719393	07263	

5.4.13 Type 72283 21.4 MHz IF Amplifier (2 MHz BW)

REF DESIG PREFIX A12 (DMS-107)

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
CR1	DIODE	1	1N462A	80131	93332
CR2	DIODE	2	5082-2800	28480	
CR3	Same as CR2				
CR4	DIODE	2	1N198A	80131	93332
CR5	Same as CR4				
C1	CAPACITOR, CERAMIC, DISC: 5000 pF, 20%, 100 V	31	C023B101E502M	56289	
C2 Thru C6	Same as C1				
C7	CAPACITOR, MICA, DIPPED: 20 pF, 5%, 500 V	2	CM05ED200J03	81349	72136
C8	CAPACITOR, CERAMIC, TUBULAR: 2.4 pF, ±0.25 pF, 500 V	2	301-000C0J0-249C	72982	
C9	CAPACITOR, MICA, DIPPED: 22 pF, 5%, 500 V	3	CM05ED220J03	81349	72136
C10	CAPACITOR, MICA, DIPPED: 220 pF, 2%, 500 V	2	CM05FD221G03	81349	72136
C11	CAPACITOR, MICA, DIPPED: 27 pF, 2%, 500 V	2	CM05ED270G03	81349	72136
C12	CAPACITOR, MICA, DIPPED: 180 pF, 2%, 500 V	2	CM05FD181G03	81349	72136
C13 Thru C17	Same as C1				
C18	Same as C7				
C19	Same as C8				
C20	Same as C9				
C21	Same as C10				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
C22	Same as C11				
C23	Same as C12				
C24 Thru C28	Same as C1				
C29	CAPACITOR, MICA, DIPPED: 10 pF, ±0.5 pF, 500 V	3	CM05CD100D03	81349	72136
C30	CAPACITOR, MICA, DIPPED: 130 pF, 2%, 500 V	1	CM05FD131G03	81349	72136
C31	Same as C1				
C32	Same as C29				
C33 Thru C36	Same as C1				
C36	CAPACITOR, MICA, DIPPED: 100 pF, 2%, 500 V	1	CM05FD101G03	81349	72136
C37	CAPACITOR, MICA, DIPPED: 43 pF, 2%, 500 V	1	CM05ED430G03	81349	72136
C38 Thru C43	Same as C1				
C44	Same as C29				
C45	CAPACITOR, MICA, DIPPED: 47 pF, 2%, 500 V	3	CM05ED470G03	81349	72136
C46	Same as C45				
C47	Same as C45				
C48	Same as C9				
C49	Same as C1				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
C50 Thru C53	Same as C1				
L1	COIL, FIXED: 47 μH, 10%	9	1025-60	99800	
L2	COIL, VARIABLE: 1.98-2.42 μH	7	7107-17	71279	
L3	Same as L2				
L4	Same as L2				
L5	Same as L1				
L6	Same as L2				
L7	Same as L2				
L8	Same as L2				
L9	Same as L1				
L10	Same as L1				
L11	COIL, VARIABLE: 2.97-3.63 μH	1	7107-19	71279	
L12	Same as L1				
L13	Same as L1				
L14	Same as L1				
L15	COIL, FIXED: 0.47 μH, 15%	2	201-11	99848	
L16	Same as L2				
L17	Same as L1				
L18	Same as L1				
L19	Same as L15				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
Q1	TRANSISTOR	2	2N2222A	80131	04713
Q2	TRANSISTOR	1	2N3251	80131	04713
Q3	Same as Q1				
R1	RESISTOR, TRIM, FILM: 100 Ω, 10%, 1/2W	1	62PAR100	73138	
R2	RESISTOR, FIXED, COMPOSITION: 47 Ω, 5%, 1/4W	8	RCR07G470JS	81349	01121
R3	RESISTOR, FIXED, COMPOSITION: 330 Ω, 5%, 1/4W	3	RCR07G331JS	81349	01121
R4	RESISTOR, FIXED, COMPOSITION: 2.7 kΩ, 5%, 1/4W	1	RCR07G272JS	81349	01121
R5	RESISTOR, FIXED, COMPOSITION: 100 Ω, 5%, 1/4W	6	RCR07G101JS	81349	01121
R6	Same as R2				
R7	Same as R3				
R8	RESISTOR, FIXED, COMPOSITION: 2.2 kΩ, 5%, 1/4W	2	RCR07G222JS	81349	01121
R9	Same as R5				
R10	Same as R2				
R11	Same as R3				
R12	RESISTOR, FIXED, COMPOSITION: 10 kΩ, 5%, 1/4W	2	RCR07G103JS	81349	01121
R13	RESISTOR, FIXED, COMPOSITION: 5.1 kΩ, 5%, 1/4W	1	RCR07G512JS	81349	01121
R14	RESISTOR, FIXED, COMPOSITION: 3.3 kΩ, 5%, 1/4W	1	RCR07G332JS	81349	01121
R15	Same as R12				
R16	RESISTOR, FIXED, COMPOSITION: 510 Ω, 5%, 1/4W	1	RCR07G511JS	81349	01121
R17	Same as R5				
R18	Same as R2				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R19	RESISTOR, FIXED, COMPOSITION: 4.7 kΩ, 5%, 1/4W	1	RCR07G472JS	81349	01121
R20	Same as R5				
R21	RESISTOR, FIXED, COMPOSITION: 33 Ω, 5%, 1/4W	2	RCR07G330JS	81349	01121
R22	RESISTOR, FIXED, COMPOSITION: 51 Ω, 5%, 1/4W	1	RCR07G510JS	81349	01121
R23	Same as R5				
R24	RESISTOR, FIXED, COMPOSITION: 220 Ω, 5%, 1/4W	1	RCR07G221JS	81349	01121
R25	Same as R5				
R26	RESISTOR, FIXED, COMPOSITION: 1.8 kΩ, 5%, 1/4W	2	RCR07G182JS	81349	01121
R27	Same as R26				
R28	RESISTOR, FIXED, COMPOSITION: 33 kΩ, 5%, 1/4W	2	RCR07G333JS	81349	01121
R29	Same as R28				
R30	RESISTOR, FIXED, COMPOSITION: 47 kΩ, 5%, 1/4W	1	RCR07G473JS	81349	01121
R31	Same as R2				
R32	NOT USED				
R33	Same as R2				
R34	Same as R8				
R35	Same as R21				
R36	RESISTOR, FIXED, COMPOSITION: 51 kΩ, 5%, 1/4W	1	RCR07G513JS	81349	01121
R37	Same as R2				
R38	Same as R2				
T1	XFMR	1	22348-3	14632	

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
U1	INTEGRATED CIRCUIT	3	MC1550G	04713	
U2	Same as U1				
U3	Same as U1				
U4	INTEGRATED CIRCUIT	1	U5F7719393	07263	

5.4.14 Type 72284 21.4 MHz IF Amplifier (3 MHz BW)

REF DESIG PREFIX A13 (DMS-107)
REF DESIG PREFIX A12 (DMS-107-1)

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
CR1	DIODE	1	1N462A	80131	93332
CR2	DIODE	2	5082-2800	28480	
CR3	Same as CR2				
CR4	DIODE	2	1N198A	80131	93332
CR5	Same as CR4				
C1	CAPACITOR, CERAMIC, DISC: 5000 pF, 20%, 100 V	28	C023B101E502M	56289	
C2 Thru C6	Same as C1				
C7	CAPACITOR, MICA, DIPPED: 20 pF, 5%, 500 V	2	CM05ED200J03	81349	72136
C8	CAPACITOR, CERAMIC, TUBULAR: 3.0 pF, ±0.25 pF, 500 V	2	301-000C0J0-309C	72982	
C9	CAPACITOR, MICA, DIPPED: 22 pF, 5%, 500 V	3	CM05ED220J03	81349	72136
C10	CAPACITOR, MICA, DIPPED: 180 pF, 2%, 500 V	2	CM05FD181G03	81349	72136
C11	CAPACITOR, MICA, DIPPED: 36 pF, 2%, 500 V	2	CM05ED360G03	81349	72136
C12	CAPACITOR, MICA, DIPPED: 75 pF, 2%, 500 V	2	CM05ED750G03	81349	72136
C13 Thru C17	Same as C1				
C18	Same as C7				
C19	Same as C8				
C20	Same as C9				
C21	Same as C10				
C22	Same as C11				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
C23	Same as C12				
C24 Thru C28	Same as C1				
C29	CAPACITOR, MICA, DIPPED: 10 pF, ±0.5 pF, 500 V	2	CM05CD100D03	81349	72136
C30	CAPACITOR, MICA, DIPPED: 130 pF, 2%, 500 V	1	CM05FD131G03	81349	72136
C31	Same as C1				
C32	CAPACITOR, MICA, DIPPED: 15 pF, 5%, 500 V	2	CM05CD150J03	81349	72136
C33 Thru C35	Same as C1				
C36	CAPACITOR, MICA, DIPPED: 100 pF, 2%, 500 V	2	CM05FD101G03	81349	72136
C37	CAPACITOR, MICA, DIPPED: 43 pF, 2%, 500 V	1	CM05ED430G03	81349	72136
C38 Thru C41	Same as C1				
C42	Same as C36				
C43	Same as C1				
C44	Same as C29				
C45	Same as C32				
C46	CAPACITOR, MICA, DIPPED: 30 pF, 2%, 500 V	2	CM05ED300G03	81349	72136
C47	Same as C46				
C48	Same as C9				

REF DESIG PREFIX A13 (DMS-107)
REF DESIG PREFIX A12 (DMS-107-1)

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
C49 Thru C53	Same as C1				
L1	COIL, FIXED: 47 μH, 10%	10	1025-60	99800	
L2	COIL, VARIABLE: 1.98-2.42 μH	7	7107-17	71279	
L3	Same as L2				
L4	Same as L2				
L5	Same as L1				
L6 Thru L8	Same as L2				
L9	Same as L1				
L10	Same as L1				
L11	COIL, VARIABLE: 2.97-3.63 μH	1	7107-19	71279	
L12 Thru L14	Same as L1				
L15	COIL, FIXED: 0.47 μH	1	201-11	99848	
L16	Same as L2				
L17 Thru L19	Same as L1				
Q1	TRANSISTOR	2	2N2222A	80131	04713
Q2	TRANSISTOR	1	2N3251	80131	04713

REF DESIG PREFIX A13 (DMS-107)
REF DESIG PREFIX A12 (DMS-107-1)

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
Q3	Same as Q1				
R1	RESISTOR, TRIM, FILM: 100 Ω, 10%, 1/2W	1	62PAR100	73138	
R2	RESISTOR, FIXED, COMPOSITION: 47 Ω, 5%, 1/4W	8	RCR07G470JS	81349	01121
R3	RESISTOR, FIXED, COMPOSITION: 330 Ω, 5%, 1/4W	3	RCR07G331JS	81349	01121
R4	RESISTOR, FIXED, COMPOSITION: 2.7 kΩ, 5%, 1/4W	1	RCR07G272JS	81349	01121
R5	RESISTOR, FIXED, COMPOSITION: 100 Ω, 5%, 1/4W	6	RCR07G101JS	81349	01121
R6	Same as R2				
R7	Same as R3				
R8	RESISTOR, FIXED, COMPOSITION: 2.2 kΩ, 5%, 1/4W	1	RCR07G222JS	81349	01121
R9	Same as R5				
R10	Same as R2				
R11	Same as R3				
R12	RESISTOR, FIXED, COMPOSITION: 10 kΩ, 5%, 1/4W	2	RCR07G103JS	81349	01121
R13	RESISTOR, FIXED, COMPOSITION: 5.1 kΩ, 5%, 1/4W	1	RCR07G512JS	81349	01121
R14	RESISTOR, FIXED, COMPOSITION: 3.3 kΩ, 5%, 1/4W	1	RCR07G332JS	81349	01121
R15	Same as R12				
R16	RESISTOR, FIXED, COMPOSITION: 510 Ω, 5%, 1/4W	1	RCR07G511JS	81349	01121
R17	Same as R5				
R18	Same as R2				
R19	RESISTOR, FIXED, COMPOSITION: 4.7 kΩ, 5%, 1/4W	2	RCR07G472JS	81349	01121
R20	Same as R5				

REF DESIG PREFIX A13 (DMS-107)
REF DESIG PREFIX A12 (DMS-107-1)

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R21	RESISTOR, FIXED, COMPOSITION: 33 Ω, 5%, 1/4W	1	RCR07G330JS	81349	01121
R22	RESISTOR, FIXED, COMPOSITION: 51 Ω, 5%, 1/4W	1	RCR07G510JS	81349	01121
R23	Same as R5				
R24	RESISTOR, FIXED, COMPOSITION: 220 Ω, 5%, 1/4W	1	RCR07G221JS	81349	01121
R25	Same as R5				
R26	RESISTOR, FIXED, COMPOSITION: 1.8 kΩ, 5%, 1/4W	2	RCR07G182JS	81349	01121
R27	Same as R26				
R28	RESISTOR, FIXED, COMPOSITION: 16 kΩ, 5%, 1/4W	2	RCR07G163JS	81349	01121
R29	Same as R28				
R30	RESISTOR, FIXED, COMPOSITION: 47 kΩ, 5%, 1/4W	1	RCR07G473JS	81349	01121
R31	Same as R2				
R32	NOT USED				
R33	Same as R2				
R34	Same as R19				
R35	RESISTOR, FIXED, COMPOSITION: 22 Ω, 5%, 1/4W	1	RCR07G220JS	81349	01121
R36	RESISTOR, FIXED, COMPOSITION: 5.6 kΩ, 5%, 1/4W	1	RCR07G562JS	81349	01121
R37	Same as R2				
R38	Same as R19				
T1	XFMR	1	22348-4	14632	
U1	INTEGRATED CIRCUIT	3	MC1550G	04713	
U2	Same as U1				

REF DESIG PREFIX A13 (DMS-107)
REF DESIG PREFIX A12 (DMS-107-1)

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
U3	Same as U1				
U4	INTEGRATED CIRCUIT	1	U5F7719393	07263	

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
CR1	DIODE	1	1N462A	80131	93332
CR2	DIODE	4	5082-2800	28480	
CR3 Thru CR5	Same as CR2				
C1	CAPACITOR, CERAMIC, DISC: 1000 pF, GMV, 500 V	4	SM1000PFP	91418	
C2	CAPACITOR, CERAMIC, DISC: 5000 pF, 20%, 100 V	12	C023B101E502M	56289	
C3	Same as C2				
C4	CAPACITOR, MICA, DIPPED: 39 pF, 2%, 500 V	2	CM05ED390G03	81349	72136
C5	CAPACITOR, VARIABLE, AIR: 0.8-10.0 pF, 250 V	2	5201	91293	
C6	CAPACITOR, MICA, DIPPED: 82 pF, 2%, 500 V	4	CM05ED820G03	81349	72136
C7	Same as C6				
C8	Same as C2				
C9	Same as C2				
C10	Same as C4				
C11	Same as C5				
C12	Same as C6				
C13	Same as C6				
C14	Same as C1				
C15	Same as C1				
C16	CAPACITOR, CERAMIC, DISC: 0.01 μF, 20%, 100 V	2	C023B101F103M	56289	
C17	Same as C16				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
C18	Same as C2				
C19	Same as C1				
C20	Same as C2				
C21	CAPACITOR, MICA, DIPPED: 100 pF, 2%, 500 V	1	CM05FD101G03	81349	72136
C22	Same as C2				
C23	CAPACITOR, CERAMIC, TUBULAR: 2.2 pF, ±0.25 pF, 500 V	1	301-000C0J0-229C	72982	
C24	CAPACITOR, MICA, DIPPED: 27 pF, 2%, 500 V	1	CM05ED270G03	81349	72136
C25	CAPACITOR, MICA, DIPPED: 12 pF, 5%, 500 V	1	CM05CD120J03	81349	72136
C26	CAPACITOR, MICA, DIPPED: 10 pF, ±0.5 pF, 500 V	3	CM05CD100D03	81349	72136
C27	Same as C26				
C38	CAPACITOR, MICA, DIPPED: 22 pF, 5%, 500 V	2	CM05ED220J03	81349	72136
C29	Same as C28				
C30	Same as C2				
C31	Same as C2				
C32	CAPACITOR, MICA, DIPPED: 47 pF, 2%, 500 V	1	CM05ED470G03	81349	72136
C33	Same as C26				
C34	Same as C2				
C35	Same as C2				
C36	Same as C2				
L1	COIL, VARIABLE: 1.08-1.32 μH	4	7107-14	71279	
L2	COIL, FIXED: 15 μH, 10%	1	1537-40	99800	

REF DESIG PREFIX A13 (DMS-107-1)

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
L3	Same as L1				
L4	Same as L1				
L5	COIL, FIXED: 15 μH, 10%	1	1537-40	99800	
L6	Same as L1				
L7	COIL, VARIABLE: 2.97-3.63 μH	1	7107-19	71279	
L8	COIL, VARIABLE: 1.98-2.42 μH	1	7107-17	71279	
L9	COIL, FIXED: 47 μH, 10%	3	1025-60	99800	
L10	Same as L9				
L11	Same as L9				
Q1	TRANSISTOR	3	2N3478	80131	02735
Q2	Same as Q1				
Q3	Same as Q1				
Q4	TRANSISTOR	2	2N2222A	80131	04713
Q5	TRANSISTOR	1	2N3251	80131	04713
Q6	Same as Q4				
R1	RESISTOR, FIXED, COMPOSITION: 15 kΩ, 5%, 1/4W	2	RCR07G153JS	81349	01121
R2	RESISTOR, FIXED, COMPOSITION: 4.7 kΩ, 5%, 1/4W	6	RCR07G472JS	81349	01121
R3	RESISTOR, FIXED, COMPOSITION: 680 Ω, 5%, 1/4W	1	RCR07G681JS	81349	01121
R4	RESISTOR, FIXED, COMPOSITION: 47 Ω, 5%, 1/4W	7	RCR07G470JS	81349	01121
R5	RESISTOR, FIXED, COMPOSITION: 15 Ω, 5%, 1/4W	1	RCR07G150JS	81349	01121
R6	RESISTOR, TRIM, FILM: 100 Ω, 5%, 1/2W	1	62PAR100	73138	

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R7	RESISTOR, FIXED, COMPOSITION: 820 Ω, 5%, 1/4W	1	RCR07G821JS	81349	01121
R8	RESISTOR, FIXED, COMPOSITION: 100 Ω, 5%, 1/4W	6	RCR07G101JS	81349	01121
R9	RESISTOR, FIXED, COMPOSITION: 1.0 kΩ, 5%, 1/4W	3	RCR07G102JS	81349	01121
R10	Same as R1				
R11	Same as R2				
R12	Same as R9				
R13	Same as R4				
R14	RESISTOR, FIXED, COMPOSITION: 2.7 Ω, 5%, 1/4W	1	RCR07G2R7JS	81349	01121
R15	RESISTOR, FIXED, COMPOSITION: 620 Ω, 5%, 1/4W	1	RCR07G621JS	81349	01121
R16	RESISTOR, FIXED, COMPOSITION: 470 Ω, 5%, 1/4W	1	RCR07G471JS	81349	01121
R17	RESISTOR, FIXED, COMPOSITION: 1.5 kΩ, 5%, 1/4W	2	RCR07G152JS	81349	01121
R18	RESISTOR, FIXED, COMPOSITION: 120 Ω, 5%, 1/4W	1	RCR07G121JS	81349	01121
R19	RESISTOR, FIXED, COMPOSITION: 12 kΩ, 5%, 1/4W	2	RCR07G123JS	81349	01121
R20	RESISTOR, FIXED, COMPOSITION: 2.7 kΩ, 5%, 1/4W	1	RCR07G272JS	81349	01121
R21	Same as R4				
R22	RESISTOR, FIXED, COMPOSITION: 270 Ω, 5%, 1/4W	1	RCR07G271JS	81349	01121
R23	RESISTOR, FIXED, COMPOSITION: 22 Ω, 5%, 1/4W	1	RCR07G220JS	81349	01121
R24	RESISTOR, FIXED, COMPOSITION: 33 Ω, 5%, 1/4W	1	RCR07G330JS	81349	01121
R25	RESISTOR, FIXED, COMPOSITION: 5.6 kΩ, 5%, 1/4W	2	RCR07G562JS	81349	01121
R26	RESISTOR, FIXED, COMPOSITION: 3.3 kΩ, 5%, 1/4W	2	RCR07G332JS	81349	01121
R27	RESISTOR, FIXED, COMPOSITION: 6.8 kΩ, 5%, 1/4W	1	RCR07G682JS	81349	01121

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R28	RESISTOR, FIXED, COMPOSITION: 10 kΩ, 5%, 1/4W	2	RCR07G103JS	81349	01121
R29	Same as R25				
R30	Same as R4				
R31	Same as R4				
R32	Same as R2				
R33	RESISTOR, FIXED, COMPOSITION: 560 Ω, 5%, 1/4W	1	RCR07G561JS	81349	01121
R34	Same as R2				
R35	Same as R19				
R36	Same as R8				
R37	Same as R8				
R38	Same as R2				
R39	RESISTOR, FIXED, COMPOSITION: 2.2 kΩ, 5%, 1/4W	2	RCR07G222JS	81349	01121
R40	Same as R39				
R41	Same as R9				
R42	Same as R8				
R43	Same as R26				
R44	Same as R28				
R45	RESISTOR, FIXED, COMPOSITION: 47 kΩ, 5%, 1/4W	1	RCR07G473JS	81349	01121
R46	Same as R4				
R47	Same as R4				
R48	Same as R2				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R49	Same as R8				
R50	Same asR8				
R51	Same as R17				
R52	RESISTOR, FIXED, COMPOSITION: 330 Ω, 5%, 1/4W	1	RCR07G331JS	81349	01121
T1	XFMR	1	22348-5	14632	
U1	INTEGRATED CIRCUIT	1	U5F7719393	07263	
U2	INTEGRATED CIRCUIT	1	CA3028B	02735	
VR1	DIODE, ZENER: 6.2 V	1	1N753A	80131	04713

5.4.16 Type 7366 Video Amplifier

REF DESIG PREFIX A14 (DMS-107)

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
CR1	DIODE	2	1N462A	80131	93332
CR2	Same as CR1				
CR3	DIODE	2	1N4446	80131	93332
CR4	Same as CR3				
C1	CAPACITOR, ELECTROLYTIC, TANTALUM: 2.2 μF, 10%, 35 V	1	CS13BF225K	81349	56289
C2	CAPACITOR, ELECTROLYTIC, TANTALUM: 1.0 μF, 10%, 35 V	4	CS13BF105K	81349	56289
C3	CAPACITOR, ELECTROLYTIC, TANTALUM: 22 μF, 10%, 35 V	1	CS13BF226K	81349	56289
C4	Same as C2				
C5	Same as C2				
C6	CAPACITOR, ELECTROLYTIC, TANTALUM: 100 μF, 10%, 30 V	1	109D107X9030T2	56289	
C7	Same as C2				
Q1	TRANSISTOR	2	2N3904	80131	04713
Q2	TRANSISTOR	2	2N3906	80131	04713
Q3	Same as Q1				
Q4	Same as Q2				
R1	RESISTOR, FIXED, COMPOSITION: 470 Ω, 5%, 1/4W	1	RCR07G471JS	81349	01121
R2	RESISTOR, FIXED, FILM: 150 kΩ, 1%, 1/4W	1	RN60D1503F	81349	75042
R3	RESISTOR, FIXED, FILM: 24.3 kΩ, 1%, 1/4W	1	RN60D2432F	81349	75042
R4	RESISTOR, FIXED, COMPOSITION: 1.0 kΩ, 5%, 1/4W	3	RCR07G102JS	81349	01121
R5	RESISTOR, FIXED, FILM: 681 Ω, 1%, 1/4W	1	RN60D6810F	81349	75042
R6	RESISTOR, FIXED, FILM: 4.75 kΩ, 1%, 1/4W	1	RN60D4751F	81349	75042

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R7	RESISTOR, FIXED, COMPOSITION: 47 Ω, 5%, 1/4W	4	RCR07G470JS	81349	01121
R8	RESISTOR, FIXED, COMPOSITION: 100 Ω, 5%, 1/4W	1	RCR07G101JS	81349	01121
R9	Same as R4				
R10	Same as R4				
R11	Same as R7				
R12	Same as R7				
R13	Same as R7				
R14	RESISTOR, FIXED, COMPOSITION: 10 kΩ, 5%, 1/4W	1	RCR07G103JS	81349	01121
R15	RESISTOR, FIXED, COMPOSITION: 20 kΩ, 5%, 1/4W	1	RCR07G203JS	81349	01121

REF DESIG	DESCRIPTION	QTY PER ASSY	MANUFACTURER'S PART NO.	MFR CODE	RECM VENDOR
CR1	DIODE	2	1N462A	80131	93332
CR2	Same as CR1				
CR3	DIODE	2	1N4446	80131	93332
CR4	Same as CR2				
C1	CAPACITOR, ELECTROLYTIC, TANTALUM: 1.0 μF, 10%, 35 V	5	CS13BF105K	81349	56289
C2	CAPACITOR, ELECTROLYTIC, ALUMINUM: 25 μF, -10+75%, 12 V	2	30D256G012BB2	56289	
C3	Same as C2				
C4	Same as C1				
C5	CAPACITOR, ELECTROLYTIC, TANTALUM: 22 μF, 10%, 35 V	1	CS13BF226K	81349	56289
C6 Thru C8	Same as C1				
Q1	TRANSISTOR	2	2N3904	80131	04713
Q2	TRANSISTOR	2	2N3906	80131	04713
Q3	Same as Q1				
Q4	Same as Q2				
R1	RESISTOR, FIXED, COMPOSITION: 470 Ω, 5%, 1/4W	1	RCR07G471JS	81349	01121
R2	RESISTOR, FIXED, FILM: 232 kΩ, 1%, 1/4W	1	RN60D2323F	81349	75042
R3	RESISTOR, FIXED, COMPOSITION: 10 kΩ, 5%, 1/4W	2	RCR07G103JS	81349	01121
R4	RESISTOR, FIXED, COMPOSITION: 1.0 kΩ, 5%, 1/4W	3	RCR07G102JS	81349	01121
R5	RESISTOR, FIXED, FILM: 24.3 kΩ, 1%, 1/4W	1	RN60D2432F	81349	75042
R6	RESISTOR, FIXED, FILM: 681 Ω, 1%, 1/4W	1	RN60D6810F	81349	75042

REF DESIG PREFIX A14 (DMS-107-1)

REF DESIG	DESCRIPTION	QTY PER ASSY	MANUFACTURER'S PART NO.	MFR CODE	RECM VENDOR
R7	RESISTOR, FIXED, FILM: 4.75 kΩ, 1%, 1/4W	1	RN60D4751F	81349	75042
R8	RESISTOR, FIXED, COMPOSITION: 100 Ω, 5%, 1/4W	1	RCR07G101JS	81349	01121
R9	Same as R4				
R10	RESISTOR, FIXED, COMPOSITION: 47 Ω, 5%, 1/4W	4	RCR07G470JS	81349	01121
R11	Same as R4				
R12 Thru R14	Same as R10				
R15	Same as R3				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
CR1	DIODE	4	1N462A	80131	93332
CR2 Thru CR4	Same as CR1				
C1	CAPACITOR, CERAMIC, DISC: 0.1 μF, 20%, 100 V	1	8131M100-651-104M	72982	
C2	CAPACITOR, ELECTROLYTIC, TANTALUM: 22 μF, 10%, 15 V	1	CS13BD226K	81349	56289
C3	CAPACITOR, ELECTROLYTIC, TANTALUM: 100 μF, 10%, 20 V	1	CS13BE107K	81349	56289
C4	CAPACITOR, ELECTROLYTIC, TANTALUM: 1.0 μF, 10%, 35 V	1	CS13BF105K	81349	56289
Q1	TRANSISTOR	1	2N2222A	80131	04713
Q2	TRANSISTOR	1	2N3251	80131	04713
Q3	TRANSISTOR	1	2N2270	80131	02735
Q4	TRANSISTOR	1	2N4037	80131	02735
R1	RESISTOR, FIXED, COMPOSITION: 470 Ω, 5%, 1/4W	2	RCR07G471JS	81349	01121
R2	RESISTOR, FIXED, FILM: 274 kΩ, 1%, 1/4W	1	RN60D2743F	81349	75042
R3	RESISTOR, FIXED, FILM: 24.3 kΩ, 1%, 1/4W	1	RN60D2432F	81349	75042
R4	RESISTOR, FIXED, COMPOSITION: 2.2 kΩ, 5%, 1/4W	1	RCR07G222JS	81349	01121
R5	RESISTOR, FIXED, FILM: 681 Ω, 1%, 1/4W	1	RN60D6810F	81349	75042
R6	RESISTOR, FIXED, COMPOSITION: 2.7 kΩ, 5%, 1/4W	1	RCR07G272JS	81349	01121
R7	RESISTOR, FIXED, FILM: 10.0 kΩ, 1%, 1/4W	1	RN60D1002F	81349	75042
R8	RESISTOR, FIXED, COMPOSITION: 100 Ω, 5%, 1/4W	1	RCR07G101JS	81349	01121
R9	RESISTOR, FIXED, COMPOSITION: 1.0 kΩ, 5%, 1/4W	2	RCR07G102JS	81349	01121
R10	Same as R9				

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
R11	RESISTOR, FIXED, COMPOSITION: 47 Ω, 5%, 1/4W	2	RCR07G470JS	81349	01121
R12	Same as R11				
R13	Same as R1				
T1	TRANSFORMER	1	14006	14632	

5.4.19 Type 79313-1 Bandpass Filter Assembly

REF DESIG PREFIX A16 (DMS-107-1)

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
A1	BANDPASS FILTER	1	79326-1	14632	
J1	CONNECTOR, RECEPTACLE: MB SERIES	2	46025	74868	
J2	Same as J1				

5.4.19.1 Type 79326-1 Bandpass Filter

REF DESIG PREFIX A16A1 (DMS-107-1)

REF DESIG	DESCRIPTION	QTY. PER ASSY	MANFACTURER'S PART NO.	MFR. CODE	RECM. VENDOR
C1	CAPACITOR, MICA, DIPPED: 500 pF, 5%, 500 V	2	DM15-501J	72136	
C2	CAPACITOR, MICA, DIPPED: 62 pF, 5%, 500 V	1	CM05ED620J03	81349	72136
C3	Same as C1				
L1	COIL, FIXED	2	1131-95	14632	
L2	COIL, FIXED	1	1131-92	14632	
L3	Same as L1				

Ref Desig	Description	Qty Per Assy	Vendor Part No.	Vendor Code
1	LIGHT BOARD	1	14004	14632
2	LAMP, INCANDESCENT (DS1, DS2, DS3)	REF	CM8-725	71744
3	LIGHT BAR	1	13963	14632
4	GUIDE PLATE	1	14122-1	14632
5	ANGLE PLATE SUBASSEMBLY	1	21411-1	14632
6	BEARING	4	SFR-1883MM	83086
7	BEARING	2	SFR-33MM	83086
8	BEARING	4	SFR2-63MM	83086
9	GEAR, PINION	2	12124	14632
10	NOT USED			
11	TENSION SPRING	1	13944	14632
12	SUPPORT PLATE	1	14179-1	14632
13	TAPE CHAMBER	1	31358-1	14632
14	CALIBRATED TAPE	1	32262	14632
15	GEAR, TAPE DRIVE	1	14065	14632
16	SHAFT	1	13908-6	14632
17	COVER	1	14044	14632
18	ANGLE PLATE	1	14043	14632
19	SPACER	3	20757-15	14632
20	SHAFT	1	12974-3	14632
21	GEAR, SPUR	1	20191-8	14632
22	RESISTOR, VARIABLE, PRECISION	REF	7223-962-1	73138
23	SHAFT, TUNING ASSEMBLY	1	21414-1	14632
24	GROUNDING CLIP	1	14308-1	14632
25	GEAR, ANTI-BACKLASH	1	20466-16	14632
26	SHAFT	1	1002-87	14632
27	SPACER	2	1451-1	14632
28	SPRING, FRICTION WASHER	AR	7754	04941
29	BEARING, THRUST	1	TT-504	70417

Ref Desig	Description	Qty Per Assy	Vendor Part No.	Vendor Code
30	GEAR, ANTI-BACKLASH	1	20466-15	14632
31	SHAFT ASSEMBLY	1	14190-1	14632
32	GEAR, ANTI-BACKLASH	1	20184-5	14632
33	SPACER, SHIM	AR	SSS-33	01351
34	REAR PLATE	1	21412-1	14632
35	STOP PLATE	1	15983-1	14632
36	STOP WASHER	5	13863-1	14632
37	STOP RETAINER ASSEMBLY	1	13865-1	14632
38	RETAINING RING	1	5100-18	79136
39	RETAINING RING	4	5100-25	79136
40	2-56 x 1/8 LONG SETSCREW	AR	AN565DC2-2	88044
41	4-40 x 1/8 LONG SETSCREW	AR	AN565DC4-2	88044
42	2-56 x 1/4 LONG PAN HEAD MACHINE SCREW	AR	MS35233-3	96906
43	2-56 x 3/16 LONG PAN HEAD MACHINE SCREW	AR	MS35233-2	96906
44	NOT USED			
45	4-40 x 5/16 LONG PAN HEAD MACHINE SCREW	AR	MS35233-14	96906
46	6-32 x 1/4 LONG PAN HEAD MACHINE SCREW	AR	MS35233-26	96906
47	6-32 x 3/8 LONG SOCKET HEAD CAP SCREW	AR	MS24674-2	96906
48	#2 SPLIT LOCK WASHER	AR	MS35338-77	96906
49	#4 SPLIT LOCK WASHER	AR	MS35338-78	96906
50	#6 SPLIT LOCK WASHER	AR	MS35338-79	96906
51	#2 FLAT WASHER	AR	MS15795-302	96906
52	#6 FLAT WASHER	AR	MS15795-306	96906
53	CLAMP, SYNCHRO MOUNTING	3	C2	00328
54	GEAR, SPUR	1	20465-2	14632
55	GEAR, ANTI-BACKLASH	1	20466-7	14632

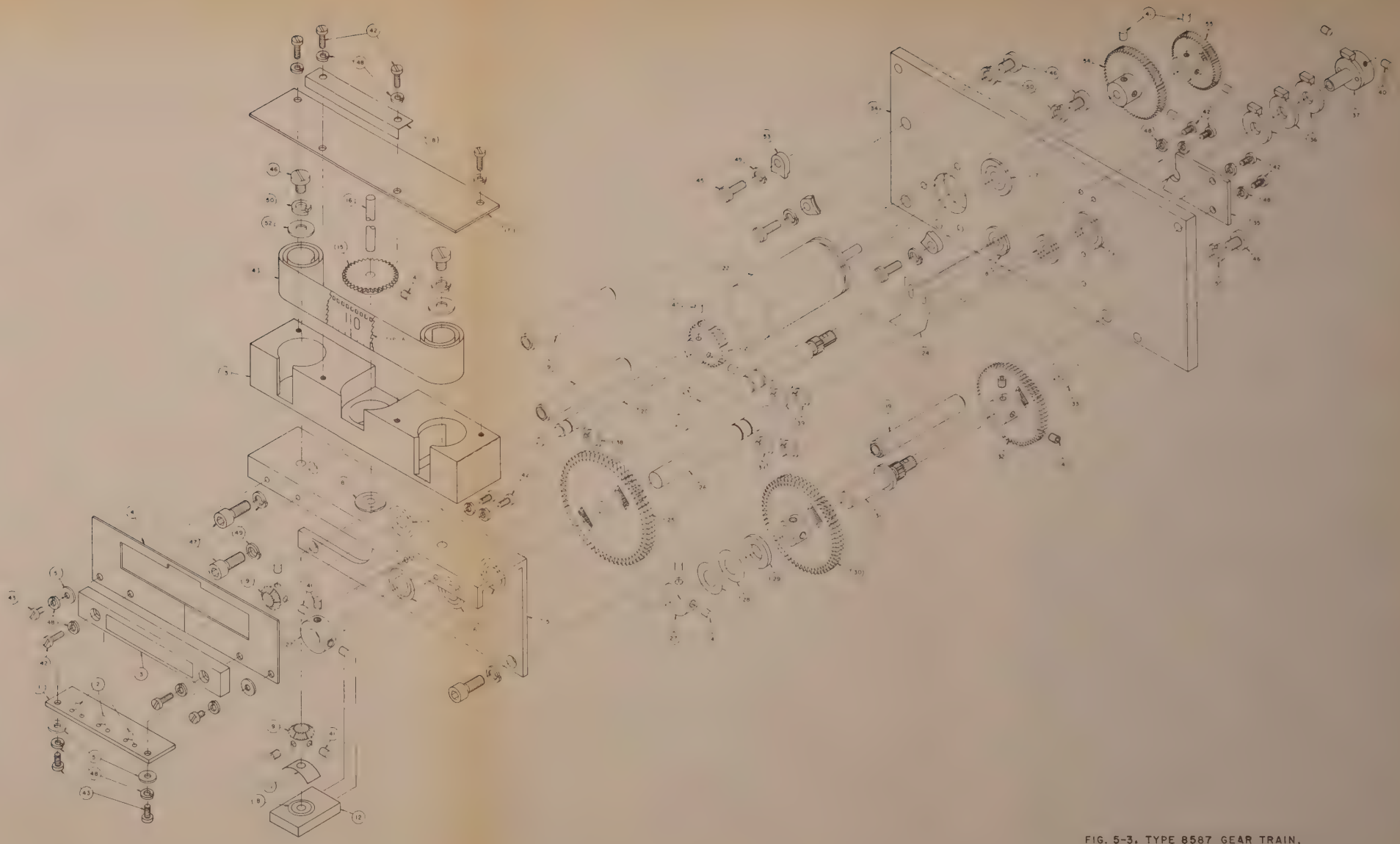
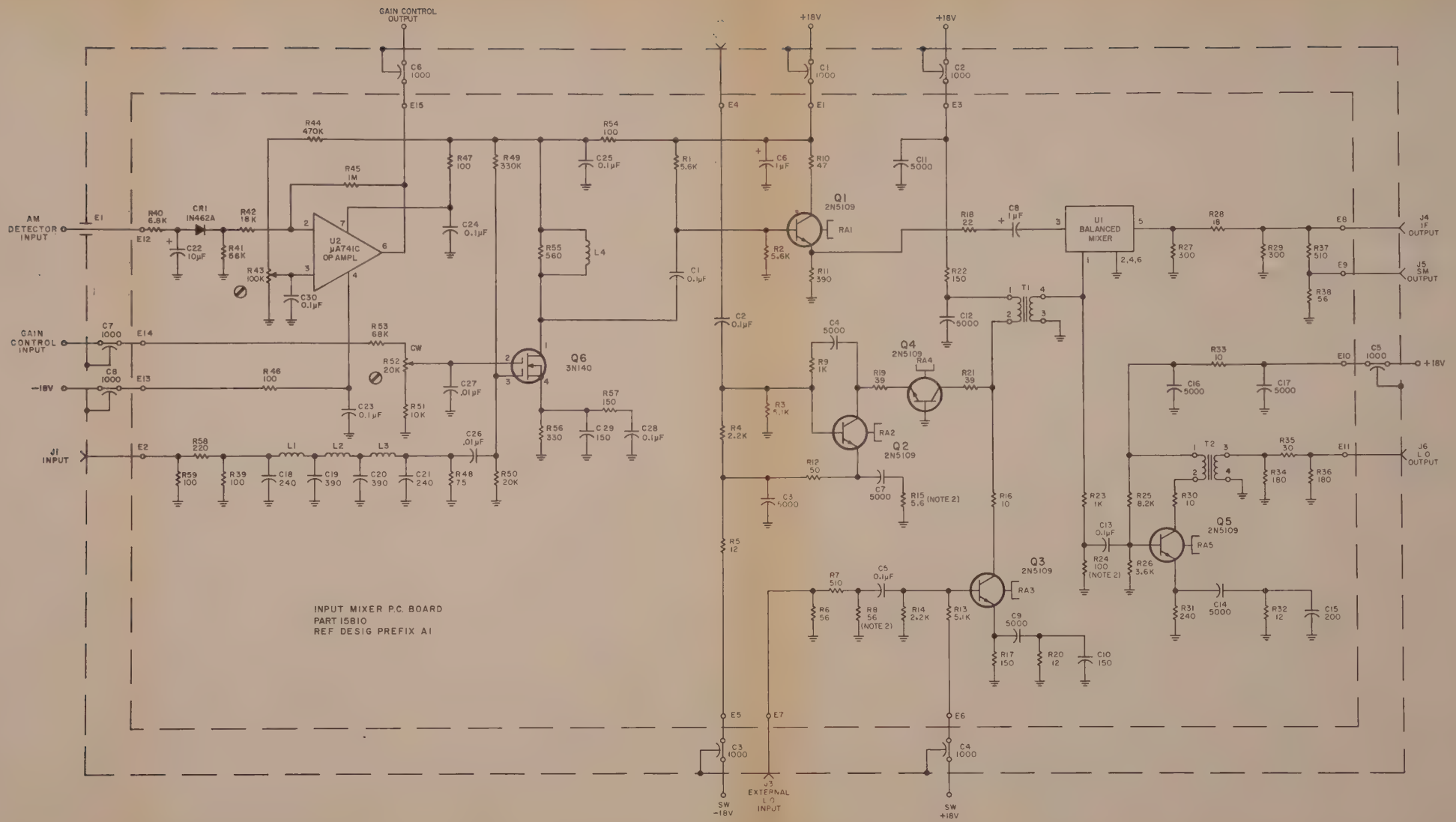


FIG. 5-3. TYPE 8587 GEAR TRAIN, EXPLODED VIEW.

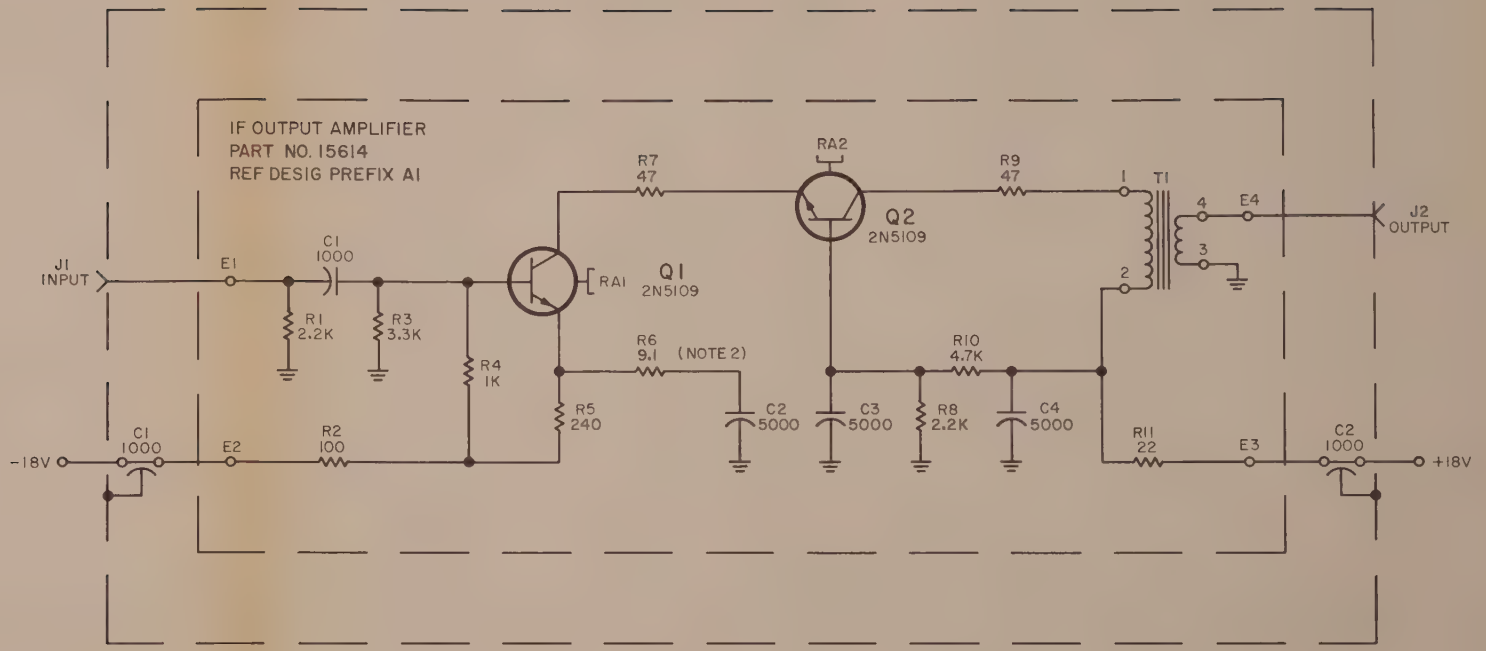
SECTION VI
SCHEMATIC DIAGRAMS



INPUT MIXER P.C. BOARD
PART 15810
REF DESIG PREFIX A1

NOTES:
1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS MEASURED IN OHMS, ±5%, 1/4W.
   b) CAPACITANCE IS MEASURED IN pF.
2. RESISTORS INSERTED IN SOLDER TERMINALS. VALUES SHOWN ARE NOMINAL. FINAL VALUE TO BE FACTORY SELECTED.
3. FOLLOWING NOTATIONS ARE USED ON POTENTIOMETERS
   a) CW INDICATES CLOCKWISE ROTATION.
   b) ⊘ INDICATES SCREWDRIVER ADJUSTMENT.

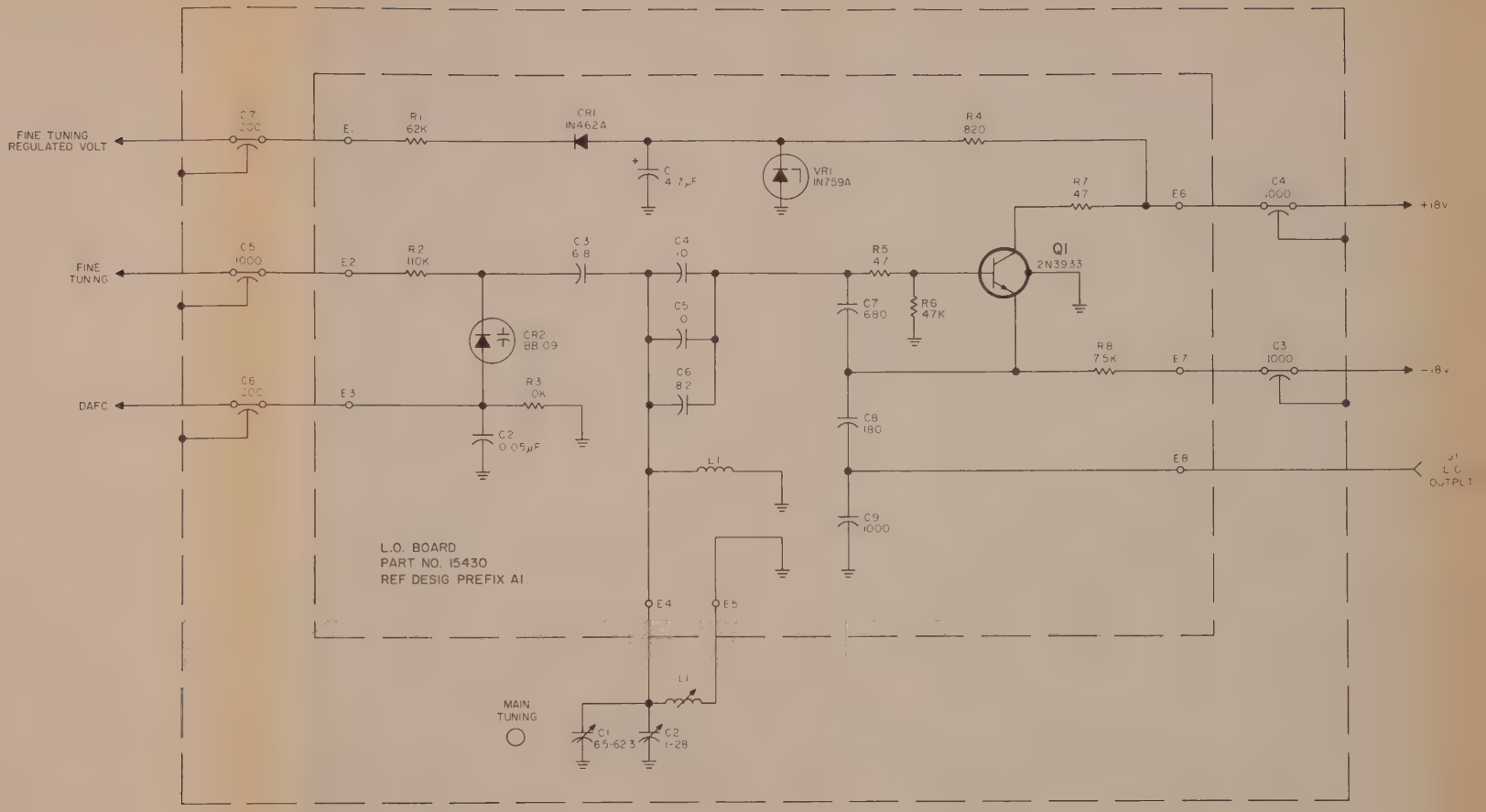
FIG. 6-1. TYPE 79586 INPUT MIXER (A1), SCHEMATIC DIAGRAM.



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS MEASURED IN OHMS, ±5%, 1/4W.
   b) CAPACITANCE IS MEASURED IN pF.
2. NOMINAL VALUE; FINAL VALUE TO BE FACTORY SELECTED.

FIG 6-2. TYPE 72300 IF OUTPUT AMPLIFIER ASSEMBLY (A2). SCHEMATIC DIAGRAM.



NOTES.

1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS MEASURED IN OHMS, ±5%, 1/4W
   b) CAPACITANCE IS MEASURED IN pF.
2. ◯ INDICATES FRONT PANEL CONTROL.

FIG. 6-3. TYPE 71272 VARIABLE OSCILLATOR ASSEMBLY(A3), SCHEMATIC DIAGRAM.

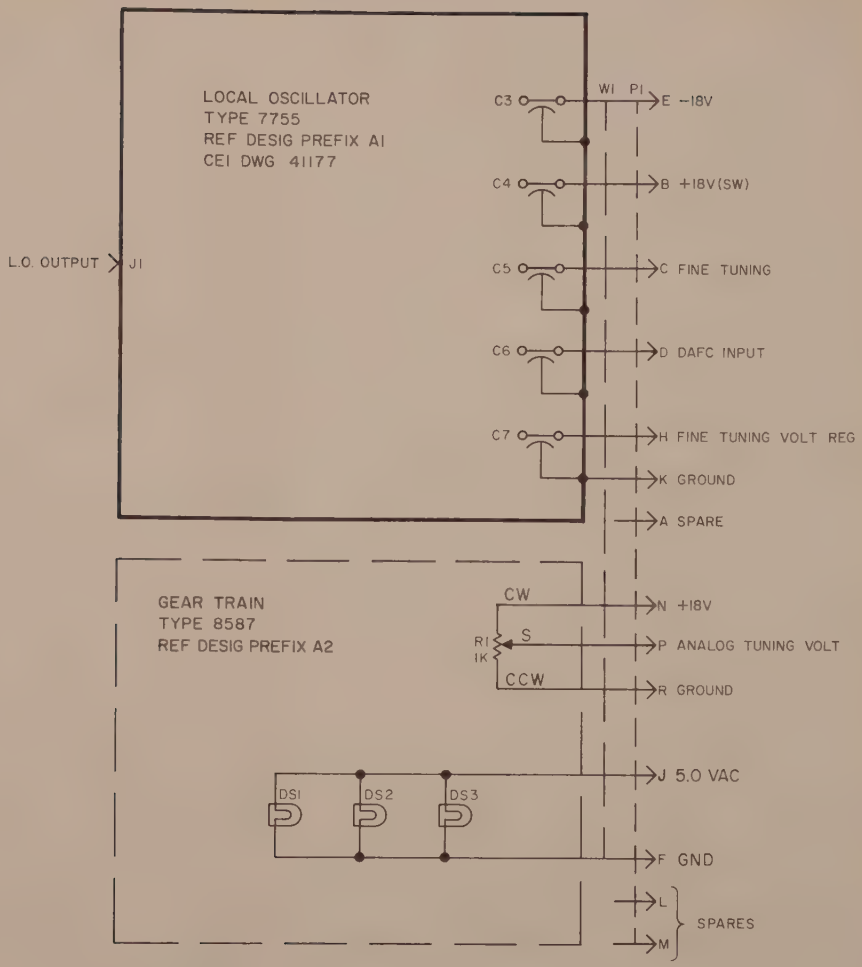


FIG. 6-4. TYPE 7755 LOCAL OSCILLATOR ASSEMBLY (A3), SCHEMATIC DIAGRAM.

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   A. RESISTANCE IS MEASURED IN OHMS, ±5%, 1/4W.
   B. CAPACITANCE IS MEASURED IN μF.
2. THE FOLLOWING NOTATIONS ARE USED ON POTENTIOMETERS:
   CW INDICATES CLOCKWISE ROTATION
   ⊘ INDICATES SCREWDRIVER ADJUSTMENT
3. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.

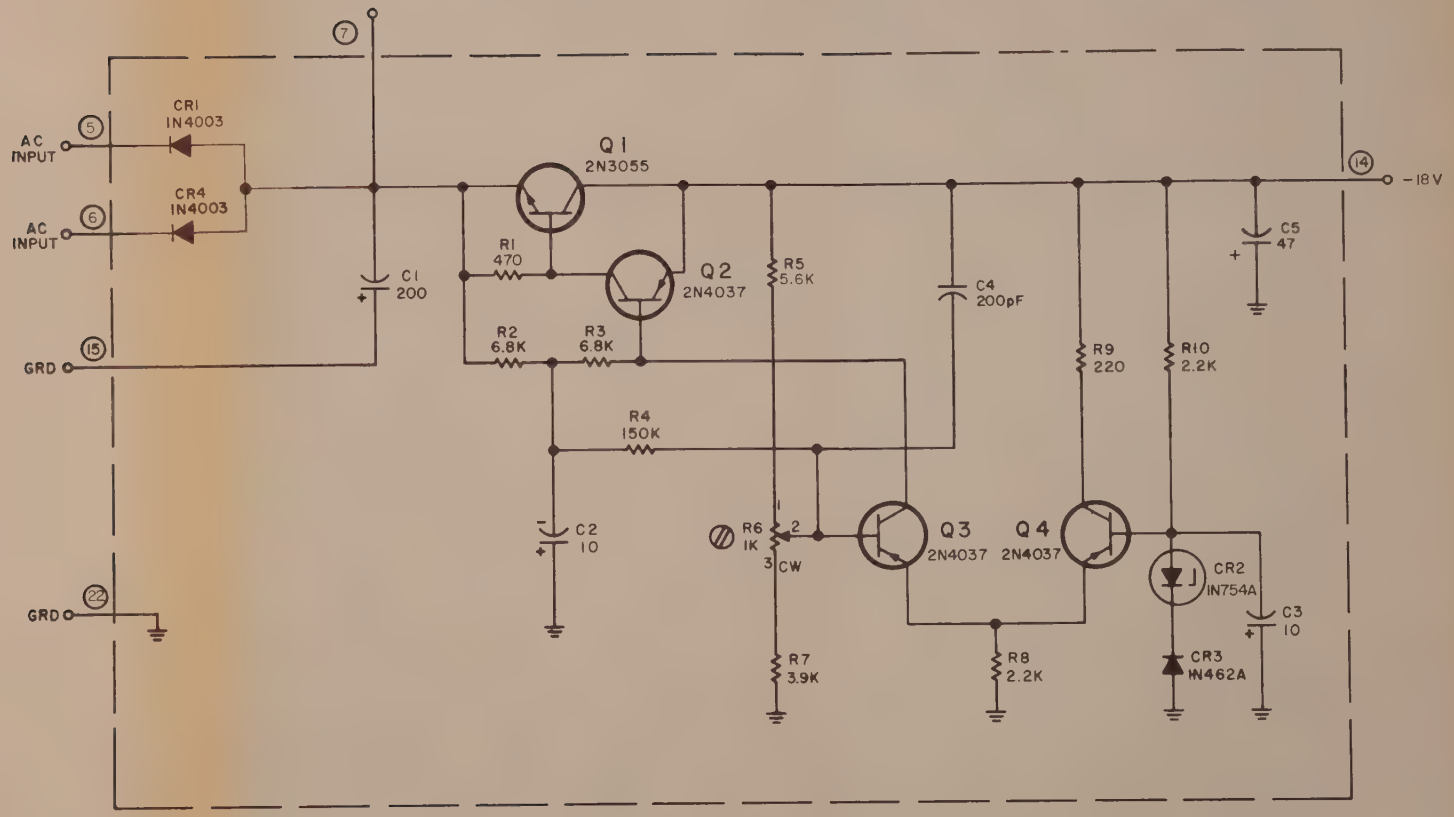


Figure 6-5. Type 76160 -18V Power Supply Regulator Board, Schematic Diagram.

NOTES:
1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE IS MEASURED OHMS, ±5%, 1/4W
2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS
3. THE FOLLOWING NOTATIONS ARE USED ON POTENTIOMETERS
   CW INDICATES CLOCKWISE ROTATION
   ⊘ INDICATES SCREWDRIVER ADJUSTMENT

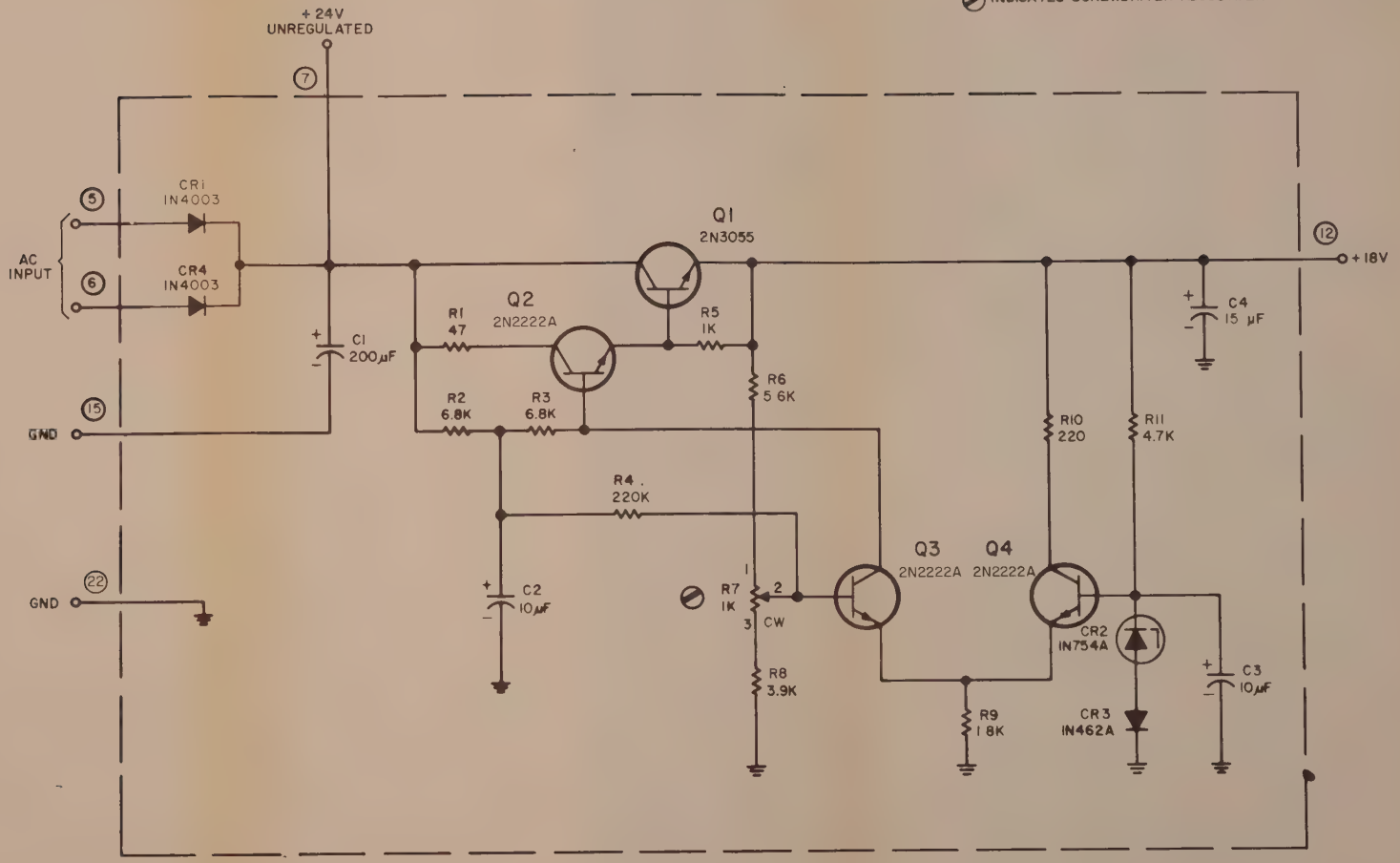
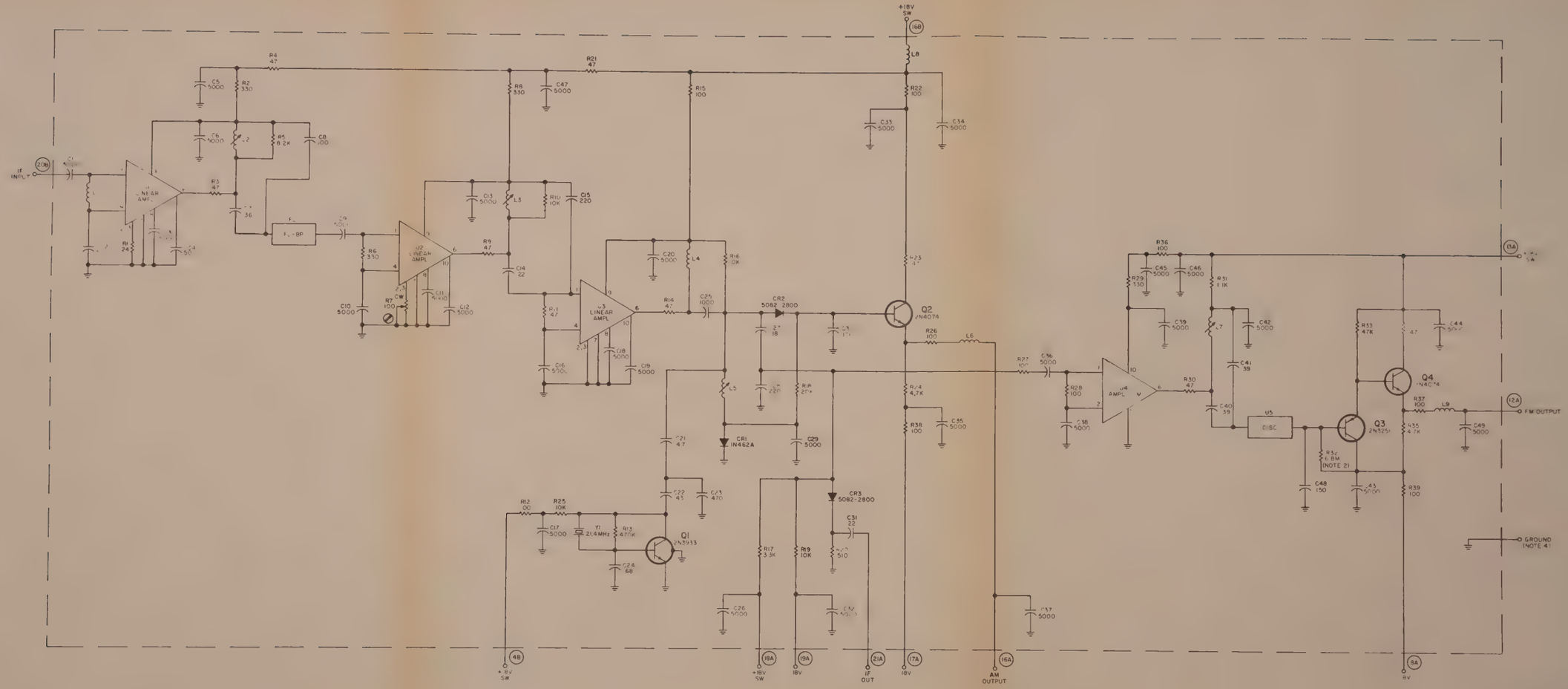
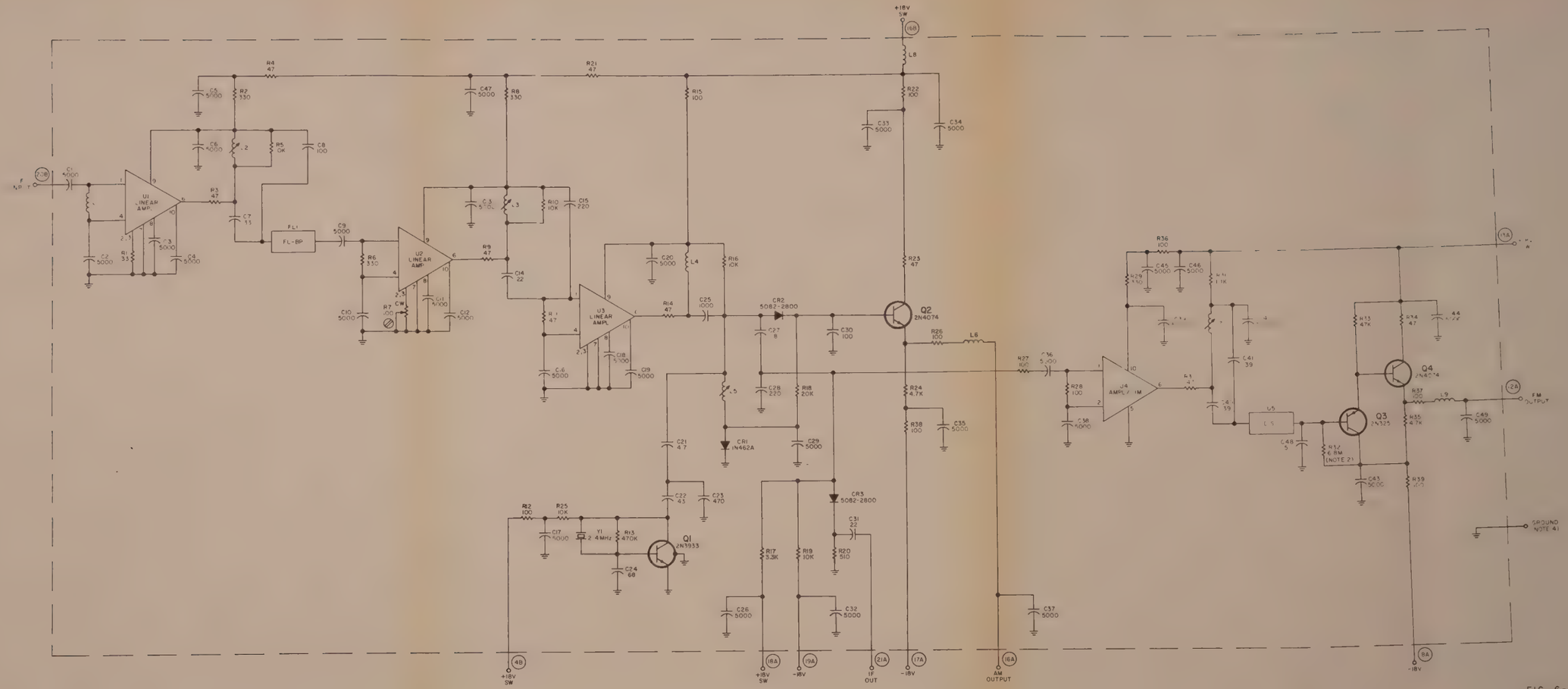


Figure 6-6. Type 76162 +18V Power Supply Regulator Board, Schematic Diagram.



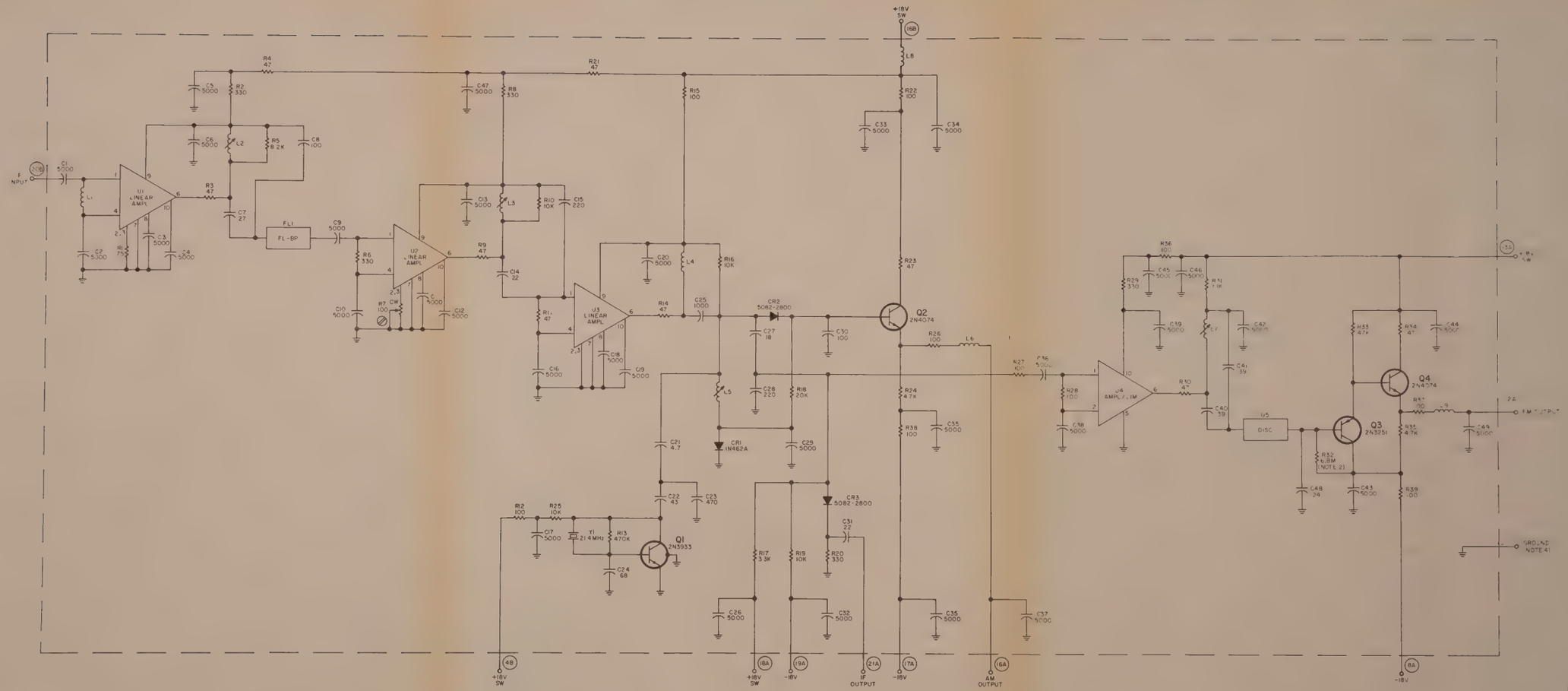
NOTES
1. UNLESS OTHERWISE SPECIFIED
   a) RESISTANCE IS MEASURED IN OHMS, ±5%, ¼W
   b) CAPACITANCE IS MEASURED IN pF
2. NOMINAL VALUE, FINAL VALUE TO BE FACTORY SELECTED
3. THE FOLLOWING NOTATIONS ARE USED ON POTENTIOMETERS:
   CW INDICATES CLOCKWISE ROTATION OF CONTROL KNOB
   INDICATES SCREWDRIVER ADJUSTMENT
4. GROUND PINS FOR PC BOARD ARE AS FOLLOWS:
   A THRU 7A, 14A, 15A, 20A, 22A
   8, 2B, 3B, 5B, THRU 15B, 17B, 18B, 19B, 21B, 22B

FIG. 6-7. TYPE 72277 21.4MHz IF AMPLIFIER (20kHz BW) (A6) SCHEMATIC DIAGRAM.



NOTES:
1. UNLESS OTHERWISE SPECIFIED:
   A) RESISTANCE IS MEASURED IN OHMS, 5%, 1/4W
   B) CAPACITANCE IS MEASURED IN pF
2. NOMINAL VALUE. FINAL VALUE TO BE FACTORY SELECTED
3. THE FOLLOWING NOTATIONS ARE USED ON POTENTIOMETERS ON PLATES:
   CW INDICATES CLOCKWISE ROTATION OF CONTROL KNOB
   ⊘ INDICATES SCREWDRIVER ADJUSTMENT
4. GROUND PINS FOR PC BOARDS ARE AS FOLLOWS:
   1A THRU 7A, 4A, 5A, 2CA, 22A
   1B, 2B, 5B, 5B THRU 5B, 7B, 8B, 9B, 2B, 22B

FIG. 6-8. TYPE 72278 21.4MHz IF AMPLIFIER (50kHz BW)(A7) SCHEMATIC DIAGRAM.



NOTES:
1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE IS MEASURED IN OHMS ±5% 1/4W
   CAPACITANCE IS MEASURED IN pF
2. NOMINAL VALUE SHOWN. VALUE TO BE FACTORY SELECTED.
3. THE FOLLOWING NOTATIONS ARE USED ON POTENTIOMETERS:
   A INDICATES CLOCKWISE ROTATION OF CONTROL KNOB
   ⊘ INDICATES SCREWDRIVER ADJUSTMENT
4. SOLDER PINS FOR P.C. BOARDS ARE AS FOLLOWS:
   6 THRU 7A, 4A, 5A, 20A, 22A
   1B, 2B, 3B, 5B THRU 5B, 7B, 8B, 9B, 21B, 22B

FIG 6-9. TYPE 72279 21.4MHz IF AMPLIFIER (100kHz BW) (A8). SCHEMATIC DIAGRAM.

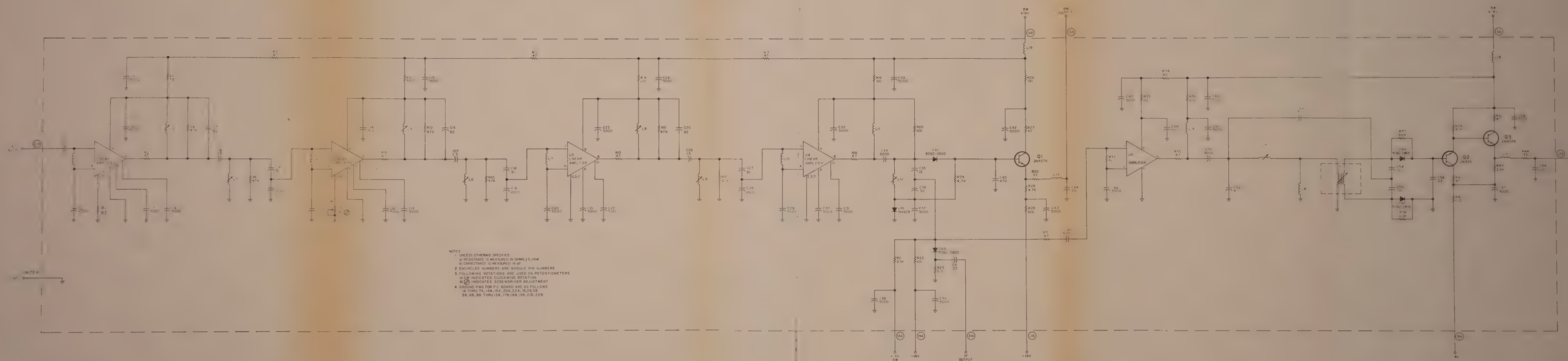


FIG. 6-10. TYPE 72280 21.4MHz IF AMPLIFIER (300kHz BW) (A
SCHEMATIC DIAGRAM.

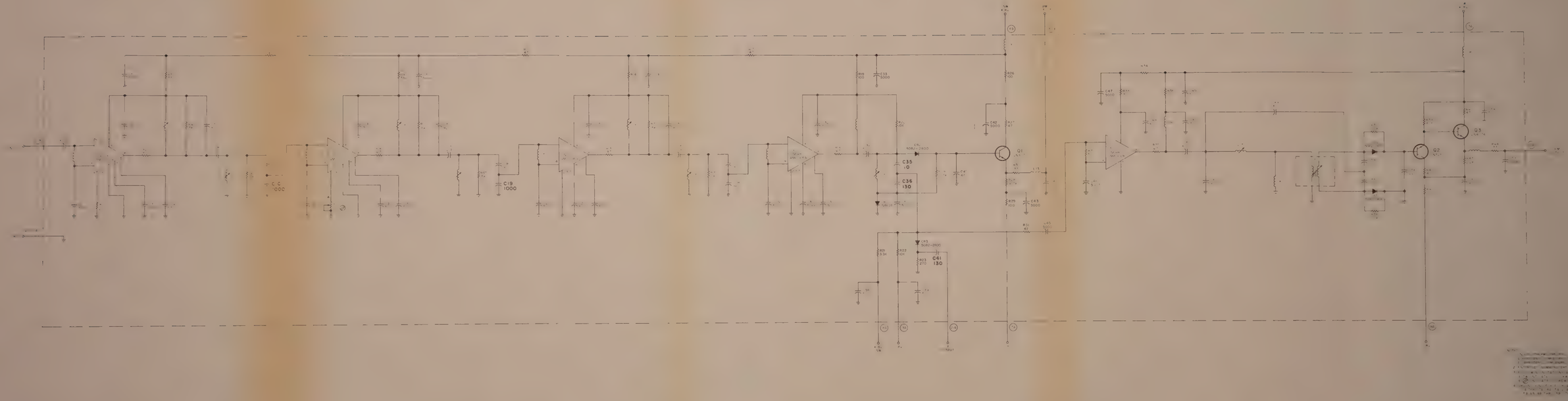


FIG. 6-11. TYPE 7228I 21.4MHz IF AMPLIFIER (500MHz BW). (A10). SCHEMATIC DIAGRAM.

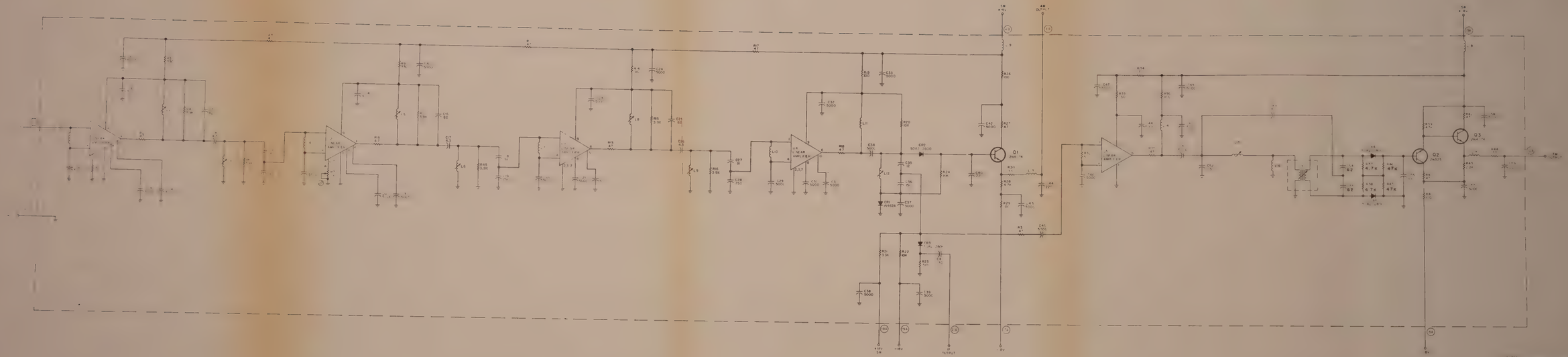
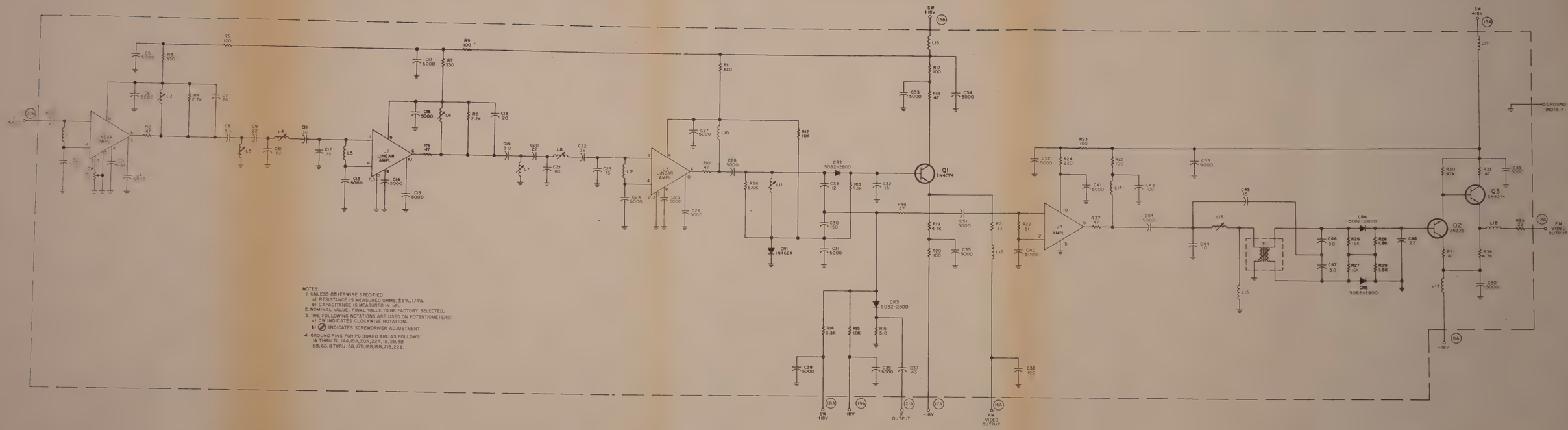


FIG. 6-12. TYPE 72282 (21.4MHz IF AMPLIFIER (1 MHz BW). (A11) SCHEMATIC DIAGRAM.



NOTES:
1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS MEASURED OHMS, ±5%, 1/4W.
   b) CAPACITANCE IS MEASURED IN pF.
2. NOMINAL VALUE. FINAL VALUE TO BE FACTORY SELECTED.
3. THE FOLLOWING NOTATIONS ARE USED ON POTENTIOMETERS:
   a) CW INDICATES CLOCKWISE ROTATION.
   b) ⊘ INDICATES SCREWDRIVER ADJUSTMENT
4. GROUND PINS FOR PC BOARD ARE AS FOLLOWS:
   1A THRU 7A, 14A, 15A, 20A, 22A, 1B, 2B, 3B
   5B, 6B, 8 THRU 15B, 17B, 18B, 19B, 21B, 22B.

FIG. 6-14. TYPE 72284 21.4MHz IF AMPLIFIER (3MHz BW) (A13) SCHEMATIC DIAGRAM.

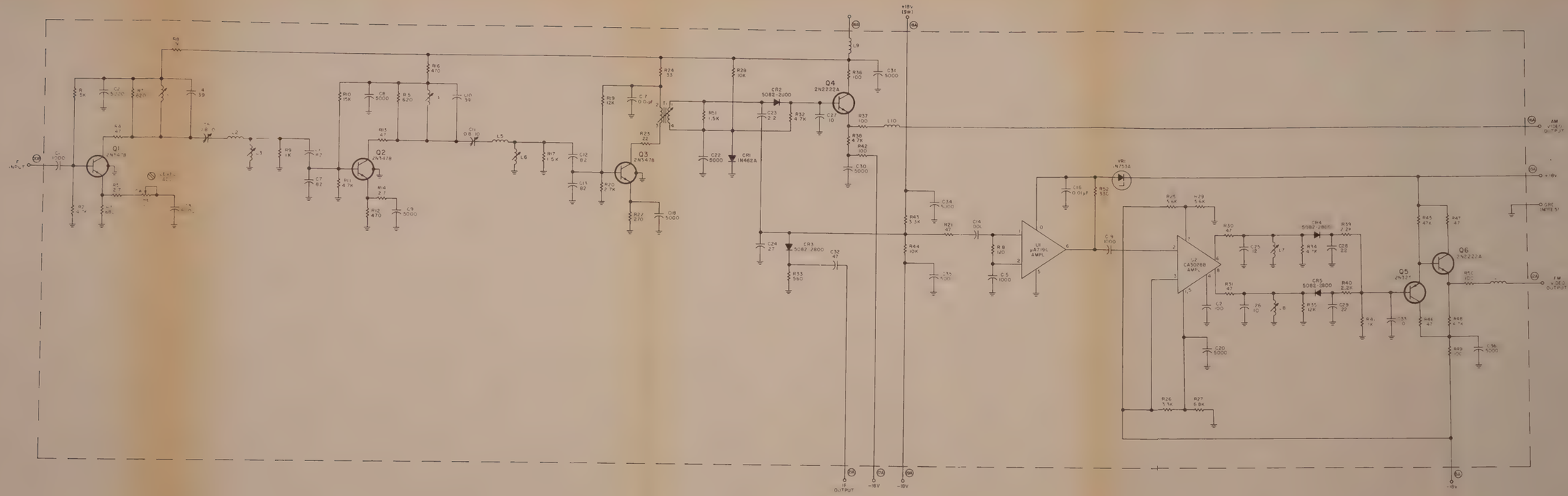


Figure 6-14A. Type 72312 21.4MHz IF Amplifier, (5.5MHz BW), Schematic Diagram.

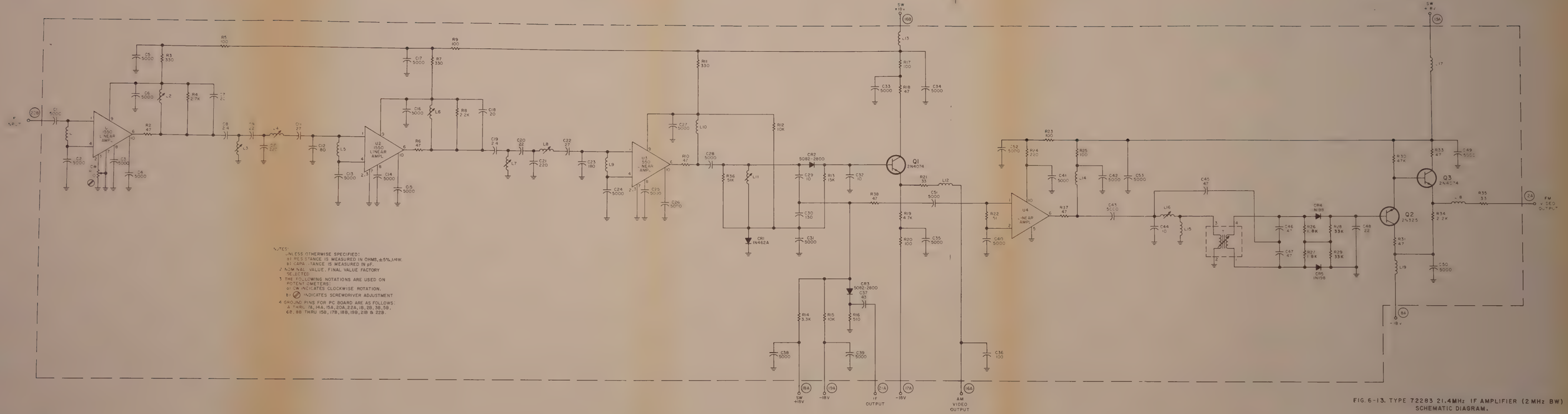
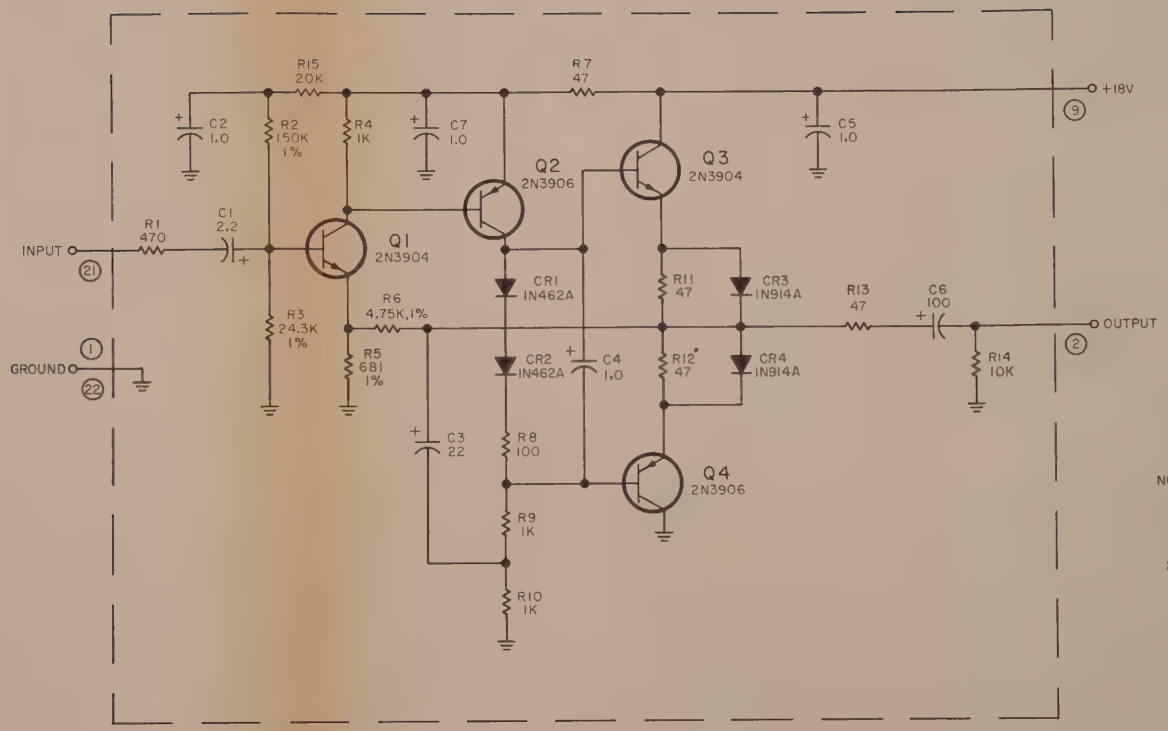


FIG. 6-13. TYPE 72283 21.4MHz IF AMPLIFIER (2 MHz BW) (A12) SCHEMATIC DIAGRAM.



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS MEASURED IN OHMS, ±5%, 1/4W.
   b) CAPACITANCE IS MEASURED IN μF.
2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.

FIG. 6-15. TYPE 7366 VIDEO AMPLIFIER (A14) SCHEMATIC DIAGRAM.

NOTES:
UNLESS OTHERWISE SPECIFIED
1. CAPACITANCE IS IN μF.
RESISTANCE IS IN OHMS ± 5%, 1/4 W.
2. ENCIRCLED NUMBERS ARE MODULE PIN NOS.

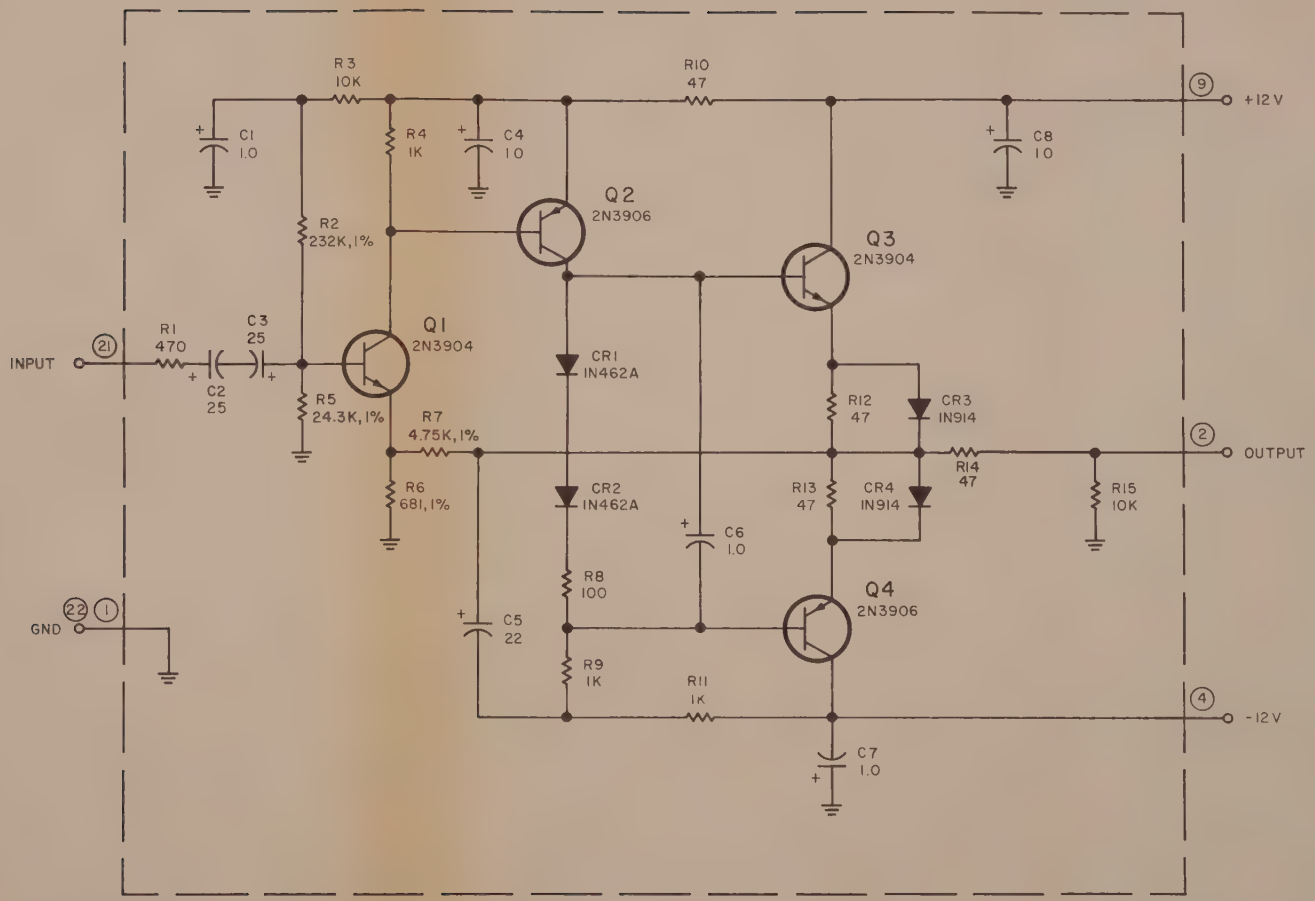
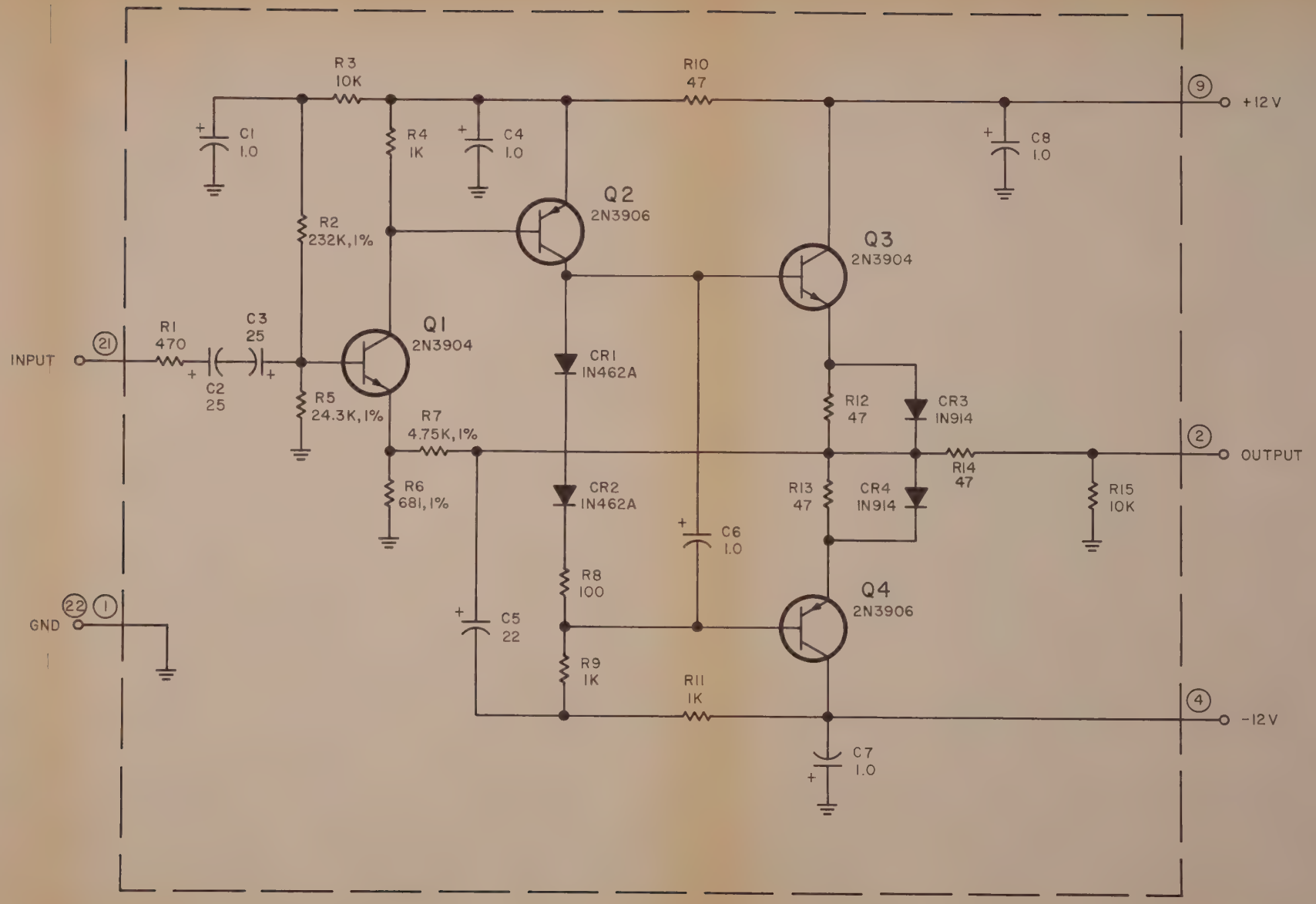


Figure 6-15A. Type 7360 Video Amplifier, Schematic Diagram.



NOTES:
UNLESS OTHERWISE SPECIFIED
1. CAPACITANCE IS IN μF.
RESISTANCE IS IN OHMS ± 5%, 1/4 W.
2. ENCIRCLED NUMBERS ARE MODULE PIN NOS.

FIG. 6-16. TYPE 7440 AUDIO AMPLIFIER (A15) SCHEMATIC DIAGRAM.

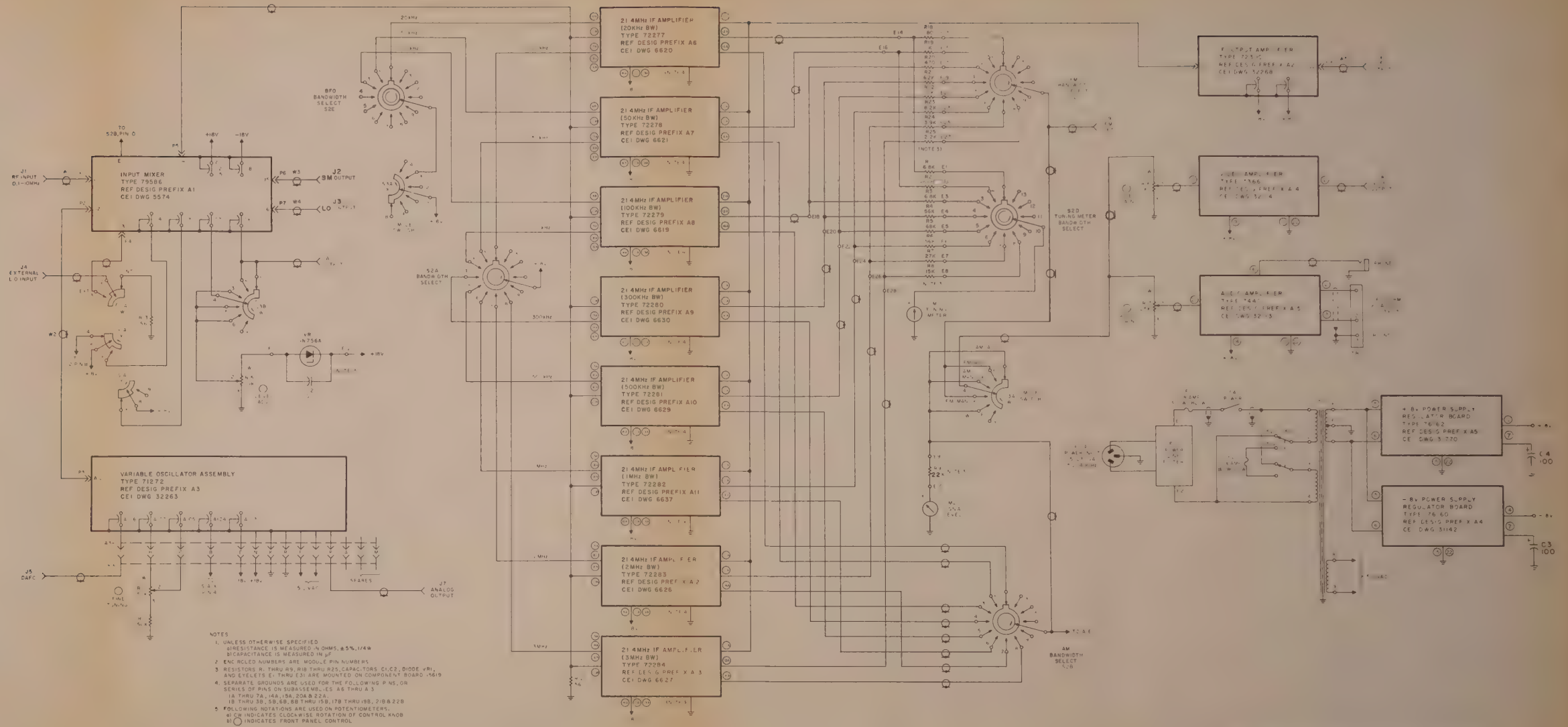


FIG. 6-17. TYPE DMS-107 DEMODULATOR, MAIN CHASSIS, SCHEMATIC DIAGRAM.

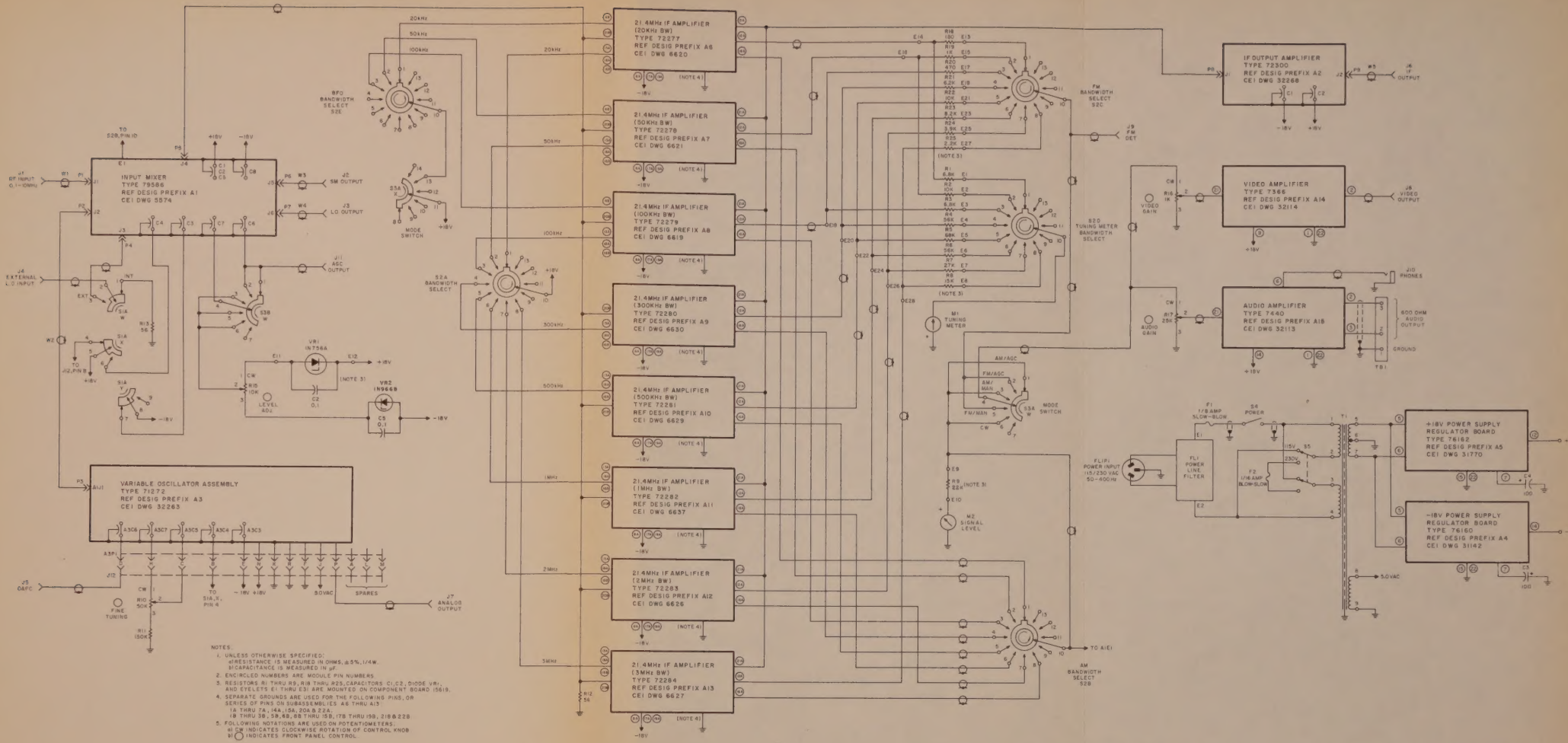


Figure 6-18. Type DMS-107-1 Demodulator, Main Chassis, Schematic Diagram.

MP MASTER
MA31041